

Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa

by

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OVERVIEW

This submission comprises four parts:

1. The study proposal as submitted to the Human Research Ethics Committee (HREC) of the University of Cape Town;
2. A literature review that informed the study;
3. An publication ready article that conforms to a peer reviewed appropriate article; and,
4. Appendices containing research instruments, HREC approvals.

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Study Proposal

Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa

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Summary

Title: Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa.

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Background:

The City of Cape Town: Health Services and UWC School of Public Health conducted a waiting time survey in 2007 at all Primary Health care clinics administered by the City of Cape Town. One of the achieved objectives of the survey was to provide each clinic, through clinic managers, with a report that covered clinic specific analysed results and spelt out clear recommendations that could shorten patient waiting times in specific service points in the clinics.

The implementation of recommendations to reduce waiting times was left to the discretion of clinic managers. Although the clinic management and staff were encouraged to reduce the patients' waiting times, they were not expected to have a formal plan endorsed by senior management and a monitoring programme was not implemented. The impact of initiatives to reduce waiting times should be measured to check whether they have succeeded in reducing waiting times.

Aims and Objectives:

The aim of this study was to assess the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa.

The objectives of this study were to:

1. Assess the perceived appropriateness of the recommendations to reduce waiting times from the 2007 survey.
2. Assess to what extent the interventions recommended to reduce waiting times were implemented.
3. Compare the waiting times at the clinics in 2007 and 2011

4. Determine the possible factors impacting on waiting times reduction including the adoption of recommendations from the 2007 survey.
5. Determine acceptable levels of waiting times from clinic managers' perspective.

Methods:

In order to achieve the above aims and objectives the following is envisaged:

1. A cross-sectional study that will assess the perceptions of clinic managers regarding the 2007 recommendations to reduce waiting times, record any actions they took to reduce waiting times and assess their views on what an acceptable waiting time is for patients.
2. A before and after study that will measure the current waiting times of patients at the clinics and assess the effect of any interventions undertaken to reduce waiting times. It will also assess if any changes in staffing, service provision and patient attendance occurred since 2007, by comparing the relevant data collected in the 2007 and the current survey.

The clinic manager's questionnaire will be piloted using sub-district managers as respondents.

A pilot study of the waiting time survey will be conducted at clinics not selected into the sample for this study. The feedback resulting from the pilot study will be used to clarify and improve the questionnaires and timesheets.

Research outputs

A report from each phase of the research will be drawn up and presented to City Health senior, sub-district and clinic management and staff.

PROTOCOL

Part 1: Background:

Access to health services is a key component of the Primary Health Care (PHC) approach.

Access is a composite concept based on three dimensions: availability (or physical access), affordability (or financial access) and acceptability (or cultural access) of health care services.¹

In order to ensure an acceptable accessible quality health care service, it is important to measure components that impact on client access. An obstacle to access is long waiting times. This has the potential to increase the opportunity cost in time for patients, sour the patient-staff interaction, decrease the perceived quality of care, decrease efficiency of service provision, imply that patients are unimportant and in emergency cases it may increase morbidity as patients' condition deteriorates while waiting.

From a patient perspective waiting time is one of the most important aspects that determine satisfaction levels. Waiting in long queues often leads to frustration, and can become time consuming and extremely expensive. The frustration of long waiting times is clearly illustrated by.² who in an article on the psychology of waiting lines examines how waits are experienced, related that; "Once we are being served, our transaction with the service organization may be efficient, courteous and complete: but the bitter taste of how long we wait pollutes the overall judgments we make about the quality of service".

Many patient satisfaction surveys in the past have shown that there is general dissatisfaction with waiting times.³ A recent independent Customer Satisfaction Survey conducted by TNS Research Surveys in the City of Cape Town showed that patient waiting times was an important factor that influenced client satisfaction.⁴

The City of Cape Town Health Department (City Health) provides mainly primary health care services to a population of about 3.5 million⁵ of which approximately 85% are uninsured and rely on this public service. City Health is divided into eight health sub-districts. The following services are provided to a largely urban population: preventative, curative, rehabilitative, nutrition, mental health and maternal health. The number of patients seen at City Health clinics range from less than 30 patients per day in small clinics to almost 700 patients per day in large clinics. In some cases 2 to 3 small clinics are managed by one clinic manager. There are a large number of informal settlements (low-income), middle-income suburbs and affluent (high-income) areas in the City of Town which is indicative of the diverse settings in which staff provide health care services. Therefore an acceptable waiting time from a patient perspective may vary from community to community depending on which area the clinic is located in and the expectations of the patients who attend the clinic.

Patient acceptable waiting times are influenced not only by how long patients wait for service but also on their experience of waiting. “It is common experience that a two minute wait can feel like nothing at all, or can feel like ‘forever’”.² The practitioner workload and the percentage of time practitioners spent attending to patients can potentially influence staff perceptions of an acceptable patient waiting time.

The City of Cape Town: Health Services contracted the University of the Western Cape School of Public Health conducted a waiting time survey in 2007. This survey covered all the primary health care clinics in the City of Cape Town. The key output of the survey was to provide each clinic with a report that showed the waiting time for every service point in that clinic and the causes of the long waiting times for those service points which had a long waiting time. In

addition it provided recommendations for shortening waiting times in those service points with long waiting times.

The 2007 waiting time survey was implemented with the active participation of the relevant clinic staff, and had the support of City Health and Sub-district Management and Health information staff. The waiting time survey conducted in 2007 measured how long patients waited for various types of services and how much time staff spent providing those services. Long patient waiting times at clinics and at service points within affected clinics were identified and the reasons thereof were highlighted. Common causes of long waiting times were found to be high workload, patients arriving in a big batch, lack of efficiency, and a service mismatch (patients were available to be seen at a service point but staff were not available). The survey showed other common causes of long waiting time to be logistical problems, bottlenecks in patient flow, (where staff are available to see patients but the patients are delayed at some other service point); queuing problems (patients are not being attended to in the order that they arrived); and, inappropriately high service times. The practitioner workload and the percentage of time practitioners spent attending to patients were also highlighted.⁶

Clinic staff and management received feedback in the form of presentations and detailed clinic specific reports which outlined the measured patient waiting times at specific service points within the clinic. The reports also described the reasons for the long waiting times at each point affected and offered recommendations to reduce the waiting times.

The recommendations were provided by the researchers and were generic in nature and logically linked to the cause of the long waiting time. Clinic management and staff were then expected to implement a form of the generic recommendation which was customised for the

context of service provision within their clinics. Examples of these generic recommendations are a recommendation to increase staff in cases where high workload was the cause of long waiting times; implementing an appointment system where an inappropriate arrival pattern was the cause of long waiting times; making attending to patients a number one priority in cases where there a lack of efficiency was the cause of long waiting times; and staggering staff shifts in cases where patients arrive for service and staff are not at the service point. Where logistical problems existed (staff available but lack of equipment or room), they recommended that management intervene and provide the needed equipment. Flow problems could be solved by temporarily reallocating staff to the service point where the bottlenecks were. Staff members were to ensure patients were attended to in a logical order - that is patients were to be seen in the order that they arrived at the clinic where illogical queuing was the cause of long waiting times for some patients. This excludes clinics where there is a fast-tracking system in place. In cases where service times were high it was recommended that service time be reduced to an appropriate time.⁶

Although the clinic management and staff were encouraged to reduce the patients' waiting times, they were not expected to have a formal plan to do so, endorsed by senior management and a monitoring programme was not implemented. It is unclear as to whether staff thought that the recommendations to reduce waiting times based on the 2007 waiting time survey were appropriate or not. It is likely that if they thought the recommendations were inappropriate they would not have implemented them. Alternatively staff may have agreed with the recommendations but were unable to implement them due to other constraints beyond their control. There may also have been situations where staff disagreed with the recommendations but implemented them as they felt pressured to do so.

Whilst these recommendations were made through the study process, and clinic management and staff were encouraged by senior management to reduce the patients' waiting times, the implementation of actions to reduce waiting times and the timelines for doing so were left to the discretion of individual clinic managers.

The need for further research

The appropriateness and acceptability of the recommendations from the previous waiting time survey is not known. Interventions to reduce waiting times were proposed, and it is therefore useful to assess to what extent these were implemented and if implemented whether they have resulted in a reduction in waiting times. Senior management in City Health have decided that waiting times should be regularly monitored as part of a routine service efficiency measure and have specifically requested that this study be implemented.

Limitations

One of the many challenges that researcher will face is that in many cases the profile (clinic managers, sub-district managers, type of services rendered and utilization rates) of the clinic has changed since the report of the 2007 survey was presented. At this stage it is uncertain how the potential change in staffing, service provision and utilization rates could affect waiting time and hence complicate comparison of waiting time in 2007 and 2011.

1. Problem

Clinic management and staff were presented with potential solutions (in the form of recommendations) based on the 2007 waiting time survey to reduce waiting times at service points where they were long. It is uncertain as to whether interventions to reduce waiting times have been implemented and if implemented whether they resulted in a decrease in waiting times. It is also unknown what duration of waiting time is acceptable to both patients and staff.

In cases where recommendations to reduce waiting times were presented to staff but no interventions were implemented, staff may have felt that the current (2007 survey) waiting times were acceptable. It is unclear as to which factors influence patients' opinions with regards to acceptable waiting times at service points.

2. Justification

The purpose of this study is to ascertain what interventions were implemented to reduce waiting times, whether implementation resulted in a decrease in waiting times and, to assess if recommendations previously provided were found to be appropriate.

3. Aim and Objectives

The aim of this study was to assess the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa.

The objectives of this study were to:

1. Assess the perceived appropriateness of the recommendations to reduce waiting times from the 2007 survey.
2. Assess to what extent the interventions recommended to reduce waiting times were implemented.
3. Compare the waiting times at the clinics in 2007 and 2011
4. Determine the possible factors impacting on waiting times reduction including the adoption of recommendations from the 2007 survey.
5. Determine acceptable levels of waiting times from clinic managers' perspective.

Part 2: Method

1. Study design

To meet the above aims and objectives a cross-sectional analytical and a before and after study design will be utilised.

The cross-sectional study will assess the perceptions of clinic managers regarding the 2007 recommendations to reduce waiting times, record any actions they took to reduce waiting times and assess their views on what an acceptable waiting time is for patients.

The before and after study will measure the current waiting times of patients at the clinics and assess the effect of any interventions undertaken to reduce waiting times. It will also assess if any changes in staffing, service provision and patient attendance occurred since 2007, by comparing the relevant data collected in the 2007 and the current survey.

2. Population and Sample Size

a. Study Population

All health clinics managers will constitute the study population for the cross-sectional study.

The study population for the before and after study - will include all staff working at all service points and all patients attending for services at those service points in the 76 health clinics managed by City Health.

b. Sample size

The entire population of clinic managers will be included in the sample for the cross-sectional study. For before and after study stratified the clinics, based on their routinely reported monthly attendance, into small, medium and large clinics, and one

of each category was randomly selected from each of the 8 sub-districts in the city. As was done in the 2007 survey, the 2011 survey will be conducted over one working day in the week. All patients arriving at the clinic on that day will be included in the sample.

c. Sampling method

All clinic managers will be included in the sample for the cross-sectional study. One large, one medium and one small clinic (with size relative to routine monthly report headcount) will be randomly selected in a three stage sampling technique from each of the eight health sub-districts for the before and after study. This gives a total sample of 24 clinics. Clinics will be allocated a number and grouped into categories of small medium and large based on average utilization with the cut-offs of small less than 100 patients seen per day, medium 100 to 300 patients seen per day and large greater than 300 patients seen per day. Then for each of the categories in each of the sub-districts numbers will be randomly selected from a random number table and the clinic which corresponds to the number will be selected. All service points in the clinics selected will be included in the sample. The survey of waiting times will be conducted over one working day in the week. All staff working on the day of the survey and all patients arriving at the clinic on that day will be included in the sample.

Conducting the survey over one working day is thought to be sufficient as the services provided by the clinics are homogenous throughout the week. The volume of patients however differs on different days of the week and hence it would be preferable to conduct the survey on an average day of the week, which according to the routine utilisation counts of City Health is a Wednesday. Comparison of waiting times with the previous survey would also be easier as that survey was run on an average day

(Wednesday) as well. However other considerations which might bias the study such as seasonal influences, school holidays, special public health interventions (health campaigns, health promotion activities,) and public holidays have to be taken into account. The previous survey was conducted during a week when none of these factors were operative and hence this survey will do likewise.

3. Measurement

a. Instruments and data collection procedures:

The cross-sectional study:

Data collection in the cross-sectional study will consist of **a self-administered questionnaire for clinic managers**. The first part of the questionnaire will enquire about the suggestions and recommendations made as a result of the previous waiting time survey. The questions will assist in determining whether and to what extent attempts were made to implement those recommendations. The second part will focus on questions around the profile of the clinic i.e. how has utilization, staff compliment, type of service provision and service processes changed within the clinic since the previous waiting time survey. The third part will cover questions on whether the clinic manager considered the recommendations from the previous survey to be appropriate or not.

The before and after study:

Two separate data collection processes will be used.

1. A patient time sheet will be an anonymous time sheet which will track the times that services (start time of each service and end time of each service is recorded) are rendered to each patient on the day of the survey by each practitioner which the patient receives a service from. Each practitioner will

record his/her practitioner code alongside the relevant services provided and the start and end time of the service, thus allowing for later calculation of the duration of service time and waiting time.

2. A practitioner time sheet will mainly track the practitioner's availability for the provision of clinical service. This will be a time sheet allowing the practitioner to record the various activities he/she participates in on the day of the survey, for example the provision of clinical service, attending a meeting, administrative work, and attending a training session. This will allow the researcher to establish the total human resources (in time) available for the provision of clinical services on the day of the survey.

b. List of definitions of variables

Waiting time – The period for which a patient is available to receive service, but is prevented because the service provider (practitioner) is not available.

Acceptable waiting time - The waiting time patients or practitioners believe is a reasonable period for patients to wait before receiving a service.

c. Validity

The validity of the **patient time sheet** will be confirmed in the following way:

Before the start of the day all staff and fieldworker watches and wall clocks in the clinic will be synchronized. When the patient enters and leaves the clinic the arrival time and the departure time will be recorded on the individual **patient time sheet** by a previously trained fieldworker. The service start time and end time that will be recorded on the

individual **patient time sheets** by the individual service providers will be checked by the fieldworkers for possible errors. All errors found will be corrected.

Some of the possible errors that will be eliminated are: A patient cannot receive services from more than one practitioner at the same time, nor can a practitioner attend to more than one patient at the same time.

In order to ensure comparability with the previous survey the waiting time survey will be conducted on an average day in the week.

The waiting time survey will be conducted during mid-spring or mid autumn (an average season) a period when extreme climatic conditions which may have an impact on the clinic utilisation are unlikely to occur.

The researcher will ensure that the waiting time survey is conducted in a week when there is no public holidays, no school holidays, no unusually long staff meetings diarised, no unusually large number of staff members likely to be absent for any specific reason and when there are no health campaigns or health promotion activities being conducted.

d. Reliability

The reliability of the waiting time survey will be assessed by repeating the survey at 15% of the clinics and assessing the correlation of the results of the original survey with the repeat survey.

4. Pilot study

A pilot study will be conducted at three clinics which were not selected into the sample.

The feedback resulting from the pilot study will be used to clarify and improve the

questionnaires and timesheets. The clinic manager's questionnaire will be piloted using sub-district managers as respondents.

Part 3: Analysis

The data extracted from the timesheets will be entered into a customized waiting times database from which waiting time and service time calculations will be extracted. The questionnaires will be captured and analysed using the Stata database application.

1. Analysis of the clinic managers' perceptions and responses of the 2007 WTS recommendations and results to the extent of its implementation.

An example would be the proportion of clinic managers who deemed the recommendations on reducing waiting times resulting from the 2007 WTS appropriate will be determined and compared using bivariate analysis to those who implemented one or more recommendations. This data will be presented in a two-by-two table from which the prevalence ratio will be calculated and the associated 95% confidence interval using a chi-squared test.

2. Analysis of the clinic managers' perceptions and responses of the 2007 WTS recommendations and results to increase or decrease in waiting times between 2007 and 2011.

An example would be the proportion of clinic managers who deemed the recommendations on reducing waiting times resulting from the 2007 WTS appropriate will be determined and compared using bivariate analysis to those clinics where there was an actual reduction or an increase in waiting times between 2007 and 2011. This

data will be presented in a two-by-two table from which the prevalence ratio will be calculated and the associated 95% confidence interval using a chi-squared test.

3. Analysis of the clinic profiles.

The numbers of staff members, numbers of patients seen, the number of patients seen per staff member, the median WT for 2011 and current WT survey data, together with differences between the 2007 and the current waiting time survey will be calculated .

The data will be presented in a table which will show the 2007 data, the current data, the difference and the 95% confidence interval. The t-test will be used to determine if there has been a significant change in the profile of the clinic.

Assessment of the relationship between the previous waiting time survey results (median waiting time) and the current clinics managers' opinion as what an acceptable duration of waiting time for a visit to the clinic is will be presented. The data will be presented in a table and the Mann-Whitney test will be used to determine the association between median waiting and the clinic manager's opinion with regard to interventions to reduce waiting times.

4. Analysis of clinic managers' profiles, their perceptions on the 2007 WT survey, the actions they took to reduce Waiting Times and their perceptions on the current factors associated with waiting times.

The factors used to measure the clinic managers' relevant qualifications; training and management experience; their perceptions of recommendations from the 2007 WT study; interventions they planned to implement; their perceptions of factors associated with long waiting times currently operative at their clinics; and, perceptions about the length of their current waiting times will be calculated. This data will be presented in a

tabular form showing the number and percentage and the associated 95% confidence interval.

Part 4: Ethics and communications

1. Ethics

The output of the study will give staff and management a clearer understanding of long patient waiting times, what the specific causes are and how to prevent it.

The potential benefits of this study will allow staff and clinic management to monitor performance of the clinic and in turn make informed decisions which will improve service delivery (i.e. shorter waiting times). The implementation of the suggested recommendations may lead to better quality of care, greater efficiency, more satisfied patients and less stressed staff.

The purpose of the study will be explained to the patients as they arrive at the clinic. Patients will be informed that participation is voluntary and that their confidentiality will be assured. Informed consent of the patients will be requested and those who refuse to participate will be assured that they will not suffer any deleterious (i.e. discrimination or ill-treatment with regards to the service they will receive) effects. Patients will also be informed that they may withdraw from the study at any point without needing to explain to the researcher why they are withdrawing.

In this survey staff confidentiality will be maintained. No personal identifiers will be captured and the analysis will provide results on service points only and not on individuals. The study has been requested by the City of Cape Town – City Health

senior management as a routine measuring activity and therefore individual staff members do not have the choice to refuse to participate without having to motivate to senior management as to why they are refusing. The right of staff to protection against potentially excessive invasive scrutiny needs to be balanced against the right of management to monitor and improve the services. If any staff activate their right to dispute with senior management as to whether they should be obliged to participate in the survey then they will be excluded from the survey.

2. Stakeholders

Management of City of Cape Town: City Health

Relevant operational staff members of City of Cape Town: City Health

Patients and community served by City of Cape Town City: Health

3. Reporting and implementation

The results with reports that outline the specific performance of each clinic will be made available to all clinic management, staff and senior management.

Part 5: Logistics

Timeline

| Item | Start date | End date | Completed |
|---|--|---------------------------------------|------------------|
| Protocol development | June 2010 | 2 nd Week in February 2011 | yes |
| Ethics approval | End February 2011 | 1 st Week in March 2011 | no |
| Interviews/questionnaire & Pilot study | 1 st Week March 2011 | 1 st Week April 2011 | No |
| Conduct Waiting time survey | 2 nd Week in April 2011 | 2 nd Week in April 2011 | No |
| Data, collation and capturing | 3 rd Week in September 2011 | End May 2011 | No |
| Data Analysis | 1 st Week June 2012 | End July 2011 | No |
| Draft discussion write-up | 1 st Week Aug 2013 | End Aug 2011 | No |
| Draft thesis report | 1 st Week June 2014 | End September 2011 | No |
| Finalise thesis report | 1 st Week December 2014 | End December 2014 | No |

References

1. McIntyre , Goudge , Harris , Nxumalo N, Nkosi M. Prerequisites for National Health Insurance in South Africa: Results of a national household survey. South African Medical Journal. 2009 Oct; 99(10).
2. Maister D. David Maister Professional Business Profession Life. [Online].; 1985 [cited 2013 12 Available from: <http://davidmaister.com/articles/the-psychology-of-waiting-lines/>
3. Anderson RT, Camacho F, Balkrishnan R. Bio Med Central Health Services Research. [Online].; 2007 [cited 2013 8 4. Available from: <http://www.biomedcentral.com/1472-6963/7/3>
4. City of Cape Town, Strategic Development Information and GIS Department, (2010),Community Satisfaction Survey 2009/10 for Cape Town Residents. [online]. Available:http://www.web1.capetown.gov.za/web1/newcityvcouncil/calender_frame.asp. (The Health Portfolio Committee met on 1 June 2010).
5. Day C, Gray A. Health and Related Indicators. South African health review. 2013: p. 208 - 322.
6. Reagon G, Igumbor E. Strengthening Health Systems through training of Health Care Providers in the conduct of Routine Waiting Time and System Efficiency Surveys. In Series: Studies in Health Technology and Informatics | Volume 160: MEDINFO 2010 - Proceedings of the 13th World Congress on Medical Informatics; 2010; Cape Town. p. 590 - 594.

Literature Review

Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa

Introduction

Long waiting times for health services can colour an otherwise positive service experience and can affect users' judgement of the quality of the service. Maister (1985) describes long waiting times as “frustrating, demoralizing, agonizing, aggravating, annoying, time consuming and incredibly expensive”.¹

This dissertation explores the current waiting times for health services in primary care settings in Cape Town from the perspectives of users, providers and managers. Literature related to the quality of care and its relationship with patient waiting times, the definitions, measures and factors that influence patient waiting times, as well as interventions to reduce patient waiting time in mainly Primary Healthcare / outpatient settings are reviewed.

Literature review strategy

A key word search from January 2013 to December 2014 was performed using the following words: Waiting time (patient; client), Patient waits, Waiting period (patient; client), Patient/client flow, Outpatient flow, Emergency unit flow, Clinic/hospital flow, Workplace flow, Service time (patient; client), Client/patient satisfaction, Client/patient, complaints, Queuing, Queuing theory, Appointments (patient; client), Causes of High/Long Waiting Times, Interventions to reduce Waiting Times, Crowding in emergency Units, Crowding in OPD, Batching of patients.

Databases used were: PubMed, Medline, Cochrane database, Science Direct, EBSCOhost, Google Scholar, and the following electronic journals were consulted:

BMJ, The Lancet, World Health Bulletin, BioMed Central.

Background

The phenomenon of long waiting times for health services and its impact on users' perception of quality of care has been researched in many service settings in South Africa and other countries.

Locally, the reasons for and consequences of waiting times have been a concern for the City of Cape Town: Health Services. In 2007, researchers at the School of Public Health at the University of the Western Cape conducted a waiting time survey at all primary health care facilities that were managed by the City of Cape Town (reference). One of its achieved objectives was to provide each facility, through facility managers, with a report that covered facility specific analysed results. The report spelt out clear recommendations that could shorten patient waiting times in specific service points in the facilities.

The implementation of these recommendations to reduce waiting times was left to the discretion of facility managers. Although the facility management and staff were encouraged to reduce the patients' waiting times, they were not expected to have a formal plan endorsed by senior management. A monitoring programme was not implemented despite the fact that routine waiting time surveys are considered to be quite feasible in a country like South Africa. Health facility staff can implement the full survey including preparation, data collection, data cleaning, data investigation, explanation, and presentation of results and then growth of suitable interventions established on results. The information obtained can be used to enhance efficiency and decrease waiting times allowing for improvements in quality of healthcare. The effects of the poor performance in the primary health care facilities that were studied are unclear and have yet to be established.

In this study, the impact of initiatives to reduce waiting times will be measured to check whether they have succeeded in reducing waiting times.

1. Definitions

1.1. Waiting times

The term 'waiting time' in health care studies is used in two distinct ways. The first meaning is the "waiting time before the first routine appointment", usually measured in weeks or months.

The second meaning is the "waiting time in the clinic" which is usually measured in minutes.

Other definitions have also been discussed in the literature. For example, Mike Hart (the author of Survey Design and Analysis Using TURBOSTATS, and Principal Lecturer in the

Department of Public Policy and Managerial Studies in the Leicester Business School, De

Montfort University, Leicester, UK.) cites the National Audit Office (NAO) study which used

"three different methods to calculate an average waiting time: (1) time between appointment time and the start of the consultation; (2) time between arrival time and the start of the consultation; and (3) waiting time estimated periodically throughout the clinic".²

Another measure of waiting time used internationally - the "Total Primary Waiting Time" - is the total length of time a patient waits before receiving medical care. This measure computes the total patient waiting time spent at the facility, excluding the total service time. If time was spent waiting for anything other than a health-specific service, then this time should also be subtracted from the total time spent in the facility.³

1.2. Measuring waiting times

There is a diversity of performance benchmarks to consider in the measurement of patient waiting times. Cost, time, congestion, and fairness were considered when waiting time was measured in a review of outpatient scheduling by Cayirli T, Veral E (2003). This review found that most studies used combinations of patients' waiting time, doctors' idle time, practitioner

overtime and patient flow time to calculate mean total cost. In general, most waiting time studies calculate the mean, maximum, frequency, distribution of patients' waiting time as well as the mean, variance, and frequency distribution of doctor's idle time.⁴ Studies focussing on "fairness" typically measured the mean waiting time of patients according to their place in the queue in the clinic. One such study, conducted in hospital outpatient departments in England, focused on queues and appointment systems amongst others and concluded that waiting-times were sensitive to small changes in the appointment intervals.⁵

Hart cautioned against the 'Hawthorne effect' where waiting times seemed to decrease when doctors knew that their clinic was being monitored. This indicates that the observation process could influence the activities monitored.⁶

1.3. Quality of Care

The term 'quality of care' in health care studies is used mostly with reference to patients' perspectives in terms of their satisfaction with a service. Many studies consider the patient's satisfaction as an important indicator of the quality of care received, and Donabedian, a pioneer of the analysis of quality of care argues that "achieving or producing health and satisfaction ... is the ultimate validator of the quality of care".⁷

Marketing studies have shown that perceptions of service quality need to be understood in order to improve services. Grönroos argues that quality of service can be described in two interrelated ways - functional and technical quality. Functional quality refers to the perception of the way (quality) in which the service is delivered, whereas the actual technical quality of the service (processes and correctness of diagnosis in health care and the response thereto) relates to the impartial quality of the service. He noted that a temporary difficulty with the technical quality of care may be overlooked if the functional quality of care is acceptable or good.⁸ Currently patient opinion of health care is valued as a component of 'quality of care'

assessment. Patient satisfaction was used as a measure to assess the quality of health care provision.⁹

A review of theory and empirical work of patients' satisfaction with health care by BEN-SI RA Zentitled "The Function of the Professional's Affective Behavior in Client Satisfaction: A Revised Approach to Social Interaction Theory" shows that patients who experience a more 'personal' encounter with the practitioner report greater levels of approval. The author also claims that it is hard to explain what constitutes quality 'interpersonal' care, but in general, it should be what is communally accepted as 'normal behaviour' when people interact in a cooperative manner.¹⁰

1.4. Quality of Care and its relationship with waiting time

Quality of care depends on many factors including practitioners' expertise, availability of medical equipment and patients' experience. However, it is mainly defined by patients' perception. If waiting time is too long, patients develop a negative perception of their experience and relate it as poor quality of care. Many patient satisfaction surveys conducted in public health care facilities show that even where patients may be satisfied with general services and clinical services, there is general dissatisfaction with waiting time for services which is often compounded by an absence of an explanation.¹¹

Patient satisfaction surveys from Wales and Nigeria show that long waiting times were a major reason for patients' dissatisfaction in outpatient services.^{12,13} In addition, a South African study, conducted to determine the levels of patient satisfaction with services at primary care antiretroviral treatment (ART) assessment, sites showed that despite the high quality of technical service delivered and patient satisfaction with general services, long waiting times for services resulted in dissatisfaction by patients.¹¹

An American national online (DrScore.com) survey of patient's satisfaction showed that although longer waiting times were associated with lower patient satisfaction ($p < 0.05$), time spent with the physician was the strongest predictor of patient satisfaction.¹⁴ The results of the study shows that decreased satisfaction associated with long waiting times is substantially reduced with increased time spent with the physician (5 minutes or more). Importantly, the combination of long waiting time to see the doctor and having a short doctor visit is associated with very low overall patient satisfaction.¹⁴ The authors conclude that it would be counter-productive to shorten patient waiting times at the expense of time spent with the patient in order to improve patient satisfaction scores.

2. Factors impacting on service quality

Waiting times negatively impact on patients' costs in seeking care and this was reported in a study exploring the reasons for non-adherence to HIV treatment in Uganda, Tanzania and Botswana. Lost wages due to long clinic waits, and transport costs impacted on adherence to treatment.¹⁵

Practitioner dissatisfaction with their working conditions is an important aspect that impacts on service delivery. A 2012 European-wide study focusing on nurses' assessments of their hospital work environments and quality of care found that between 20 to 50 percent of nurses in 12 countries envisioned resigning from their existing job in the subsequent year and, of the 20-40% planning to leave, reported that they would look for employment outside the nursing profession,¹⁶ with many feeling that quality of service delivery had declined in recent years. Earlier European hospital studies on nursing workloads had shown high workload levels, nurse fatigue and unsupportive work settings, and called for changes to improve work environments and an increase staff in order to improve the quality of service delivery.¹⁶ Other research also confirmed that the nurses' dissatisfaction with their working environment, staff shortages and poor management negatively impacted on patients' safety and quality of care.^{17,18} A similar

national South African study focussing on nurses work settings and understanding of quality of care and patient safety, found that more than half, 54.4% (634/1166) of nurses (who considered their working conditions to be poor) planned to leave their job within the following year due to job dissatisfaction.¹⁹

Commentators on the South African context, argue that the increasing shortage in health professionals in South Africa negatively impacted on the quality of healthcare in the public healthcare facilities, which were insufficient to address the needs of the increasing number of patients seeking healthcare services at public healthcare facilities.²⁰ Rispel and Moorman argued that poor organisation in public healthcare service delivery required transformation to address the aftermath of apartheid, changing infrastructure of healthcare delivery, training student nurses and continued training for qualified nurses. Day found that declining quality has given rise to patients complaining about long waits for service, discourteous staff, and not receiving medication or support on time at public healthcare facilities.²¹ A 2011 study found that patients often feel abandoned and excluded from the public health system but they expected health practitioners to offer quality healthcare. Patients complain that public hospitals in South Africa are often run in an incompetent, bureaucratic and unproductive manner which often leads to long waiting times.²²

2.1. Patients' and providers' perceptions

People's perceptions of service quality may be dependent on practitioners' attitudes and patients waiting. For example, a Bangladeshi study found that technical competence of the provider had a less important influence on client satisfaction than "respect and politeness".²³ Similarly, an Israeli study showed that practitioner-patient interaction was important and was the determinant of patients' immediate satisfaction.²⁴ A study conducted in public health facilities in Indonesia concluded that clients often decide which service provider they are

prepared to use based on waiting times and communication with patients and concluded that scheduling of patient visits is a critical intervention.²⁵

Hart's 1995 study which aimed to define a baseline for waiting times of patients and the implementation of improvements supported the view that a more participative management style produced more involvement of individuals and greater efficiency than an authoritarian approach. "But an approach in which management and consultants worked together to meet the externally imposed standard set by The Patients' Charter effected the improvements needed in a remarkably short space of time".²

3. Factors influencing waiting times

A review literature of 'waiting times' showed the reasons for long waiting times included insufficient practitioners, 'no shows' for appointments, variability of patient demand, bottlenecks, service times, and practitioners starting late.⁴

3.1. Staff shortages/workload

The results of a study of private and public hospitals in South Africa indicate that nurse high workloads are significantly associated with patient safety and quality of care.¹⁹ The lay press has reported on many occasions^{26,27,28} that patients queue at facility pharmacies before they open to ensure that they are served, due to staff shortages. For example, a 2008 Inter Press Service (IPS) News article reported that patients arrived as early as 5am to ensure that they are attended to before the facility closes at the end of day. Patient dissatisfaction with services was also found in a *Zambian* study that reviewed the integration of ART into general services, which resulted in an increase of nurse workload and patient waiting time.²⁹

Nursing staff shortages at primary health care level compromises the quality of health care provided to patients because it means that patients are not adequately monitored which lead to an increase in preventable illness. Consequently, more expensive treatment may be required

when complications occur if illnesses are not treated in time. This additional cost is a strain on the country's financial resources.³⁰

Consequences of inadequate supply of nursing staff can have grave consequences and result in avoidable death. For example a patient may die in an emergency waiting room should he or she not be treated timeously due to shortages of nursing staff.³¹

Health care providers argued that a significant and sustainable relationship with their patients lead to better compliance, improved continuity of healthcare, and enhanced health outcomes.⁶

3.2. 'No shows' for appointments

A simulation analysis study to improve and examine the performance of scheduling rules that intended to accommodate superfluous overbooked appointments found that overbooking allowed providers to increase their productivity and create additional capacity to improve patients' access to services. The results demonstrated that the practice of overbooking to recover capacity that would be lost to no-shows, both overtime and patient wait time increased with increased no-show rates and with increased service time variation. Although service time variability impacted the magnitude of patient wait time and provider overtime, it was found to have little impact on the set of schedules that perform best.³²

3.3. Logistics, variability of patient demand and patient flow

An article reviewed health systems strengthening, focusing on training and systems efficiency and waiting times surveys from over 200 primary level health care facilities, 11 secondary level (regional hospitals) and three tertiary hospitals within two provinces of South Africa and three districts in Tanzania, with waiting and service time calculations done for over 110 000 patient visits to health facilities. Causes of long waiting times in health care facilities were queuing problems, lack of efficiency, patient provider mismatch, inappropriate service time, logistical

problems, batching problems and inappropriate arrival patterns. The authors noted that queuing problems may occur when the patients are not attended to in the order that they arrive at the service point. Logistical problems were when equipment malfunctions, where there was lack of equipment, the non-availability of consulting rooms resulting in patients waiting to be seen and staff availability yet unable to attend to patients. Batching and inappropriate arrival patterns can occur if many patients arrive at the same time. These patients would then have to wait a long time to be seen, as staff members would be busy seeing the patients who were first.³³

Studies have shown that managing the patient flow is one of the important factors that influence patient waiting times and in turn the quality of healthcare services in out-patient departments, primary health care clinics and health centres. Reagon and Igumbor identifies poor patient flow and bottlenecks as a cause of long waiting time and identified that it occurs when practitioners are available to see patients at the facility but they are being delayed at some other service point.³³ Mardiah and Basri suggests that patient flow epitomises the ability of the healthcare system to serve patients quickly and efficiently throughout their visit, and addressing this is a key element to improve efficiency in the service delivery.²⁵

A hospital based study has also found that patient flow has a significant impact on patient waiting times. Identification of various care pathways by patient types enabled analysis of patient flow and revealed unnecessary stages. Recurring waiting room and induction stages in anaesthesia were found to be unnecessary and reflect room and/or other resource unavailability and resulted in wasted nursing time, inconveniencing of patients, and increased visit durations. The study revealed how frequently unnecessary stages were occurring in these settings. This motivated staff to scrutinize patient flow to determine causes of unnecessary patient movement and how it could be avoided.³⁴

3.4. Bottlenecks

Congestion in health settings hurts service quality from many different perspectives. Apart from taking up valuable space, when queues get excessively long, doctors may increase their service rate or they may be forced to call back some patients at another time.⁴ Heaney et al. (1991) also reported that in fixed-interval appointment systems, each successive patient were expected to have, on average, a longer wait time due to the congestion that tends to build up over time. Not only do waiting times increase, but also consultation times tend to decrease as doctors speed up when they progressively fall behind schedule.³⁵

In OPDs (out-patient departments), primary care services with a high patient practitioner ratio and where appointment systems are ineffective or a non-existent one can anticipate that patients will wait long for services. Welsh (1952) found that in many appointment systems patients were called at a rate in excess of that which the medical staff members were able to clear the system and this was an important cause of excessive waiting.³⁶ The efficacy of an appointment system is dependent on the balance between patient waiting time and the practitioner idle time. Katz (1969) stated that the basic trade-off question in any OPD appointment system was patient-waiting-time versus physician-idle-time.³⁷ Inefficiency in health care facilities occurs when patients are available to be attended and staff members are present at the service point but they are busy doing something else instead of attending to waiting patients. Similarly a “mismatch” occurs “when patients arrive to be seen but staff members are not yet at that service point”.³³

Staff absenteeism, unexpected staff shortages, staff not arriving on time, and patients not arriving on time would all contribute to deviating from the appointments schedule on a daily basis.³⁸

3.5. Service time

Consultation time is the total time a practitioner spends attending to all matters relating to a patient's requirements (with the exclusion of attending to other patients).⁵ Practitioners may shorten their service time (in some cases without realising it) when there are many patients waiting to be attended.^{5,39,40} Furthermore studies that gauge the influence of service time duration show that shorter consultation times result in shorter patient waiting times.⁴¹ Business tools that assist with the rapid retrieval of medical records, patient information and laboratory results can help to reduce the service time.⁴²

3.6. Practitioners starting late

A Singaporean study analysed factors contributing to long waiting times in OPD settings showed that in an appointment environment, where a session starts later than planned, resulted in a knock-on effect on all the following appointments and overtime. Reasons for the lateness included preparation work and doctor lateness.⁴³ A 2003 British modelling study in a busy Ear, Nose and Throat (ENT) outpatient department demonstrated that the clinic starting times (practitioner / consultant attending to the first patient) had a pronounced effect on the patients waiting times. If clinics were to start promptly then, on average, 15 minutes of patient waiting time could be saved, or 97 hours each week. The analysis showed that avoiding large blocks of patients is sensible as this resulted in each patient having to wait an extra eight minutes for their first appointment which is equivalent to 53 hours of waiting time per week. The study predicted that patients would spend ten extra minutes in the clinic and 15% more patients will have to wait for more than 30 minutes for their first service in a clinic where practitioners / consultants start a clinic only once the waiting room was busy.³⁸

4. Interventions to reduce waiting times

A management commentary argued that redesigning the underlying processes for delivering healthcare could result in better outcomes for patients, more satisfying working conditions for staff and lower costs to the tax payer (or members of private healthcare schemes). The author argued that experience in the UK has shown that healthcare problems cannot simply be resolved by spending more money or by increasing capacity and staff.⁴⁴

An improvement project in the USA in 2010 aimed at reducing patient waiting time in a facility that had consistently scored low in patient wait times on patient satisfaction surveys. The dissatisfaction of patients had led to doctors and clinic staff becoming frustrated as they were not able to manage chronic diseases patients effectively due to poor attendance at follow-up appointments. The team identified where the most significant inefficiencies occurred and ran brainstorming sessions with representatives from each of these areas to find resolutions that could have a positive effect on patient flow. Patients waiting time were reduced by 18% without compromising the quality of service delivery. Participants in the project anticipated “improved patient satisfaction, improved resident physician satisfaction and improved continuity of care for our clinic patients” due to the improved process flow”.⁴⁵

Previous research has suggested various appointment scheduling systems in order to reduce long patient waiting time and in turn increase the efficiency in the health care facility.

According to Harper and Gamlin (2003) “... appointments schedules have been shown to drastically reduce patient waiting times, without the need for extra resources...”³⁸

Some literature suggests that the patient appointments should be scheduled at intervals depending on the different types of services provided to the various types of patients.⁴⁶

Appointment schedules for a clinic play a vital role in controlling patient waiting times, but need to reflect the different types of patients who use the clinic, and their varying care needs within the system.³⁸ They should also respect the daily uncertainty associated with each clinic.

Recommendations over many years proposed that two patients be booked at the beginning of the session. The rest of the appointments should then be booked one after the other at an interval of a predetermined average consultation time.⁵ A study conducted in South African in 1998 showed that the implementation of a block appointments system significantly reduced patient waiting time.⁴⁷ Another important 1964 study showed that this appointment scheduling system lead to a reduction in patient waiting time and practitioner idle time. Welch reviewed research on appointment scheduling in outpatient services which highlighted broad problems, modelled considerations and offered classification of practices used in previous literature.³⁶ A number of appointment rules have been identified by various researchers which are cited below:

1. The “Single-block rule” allow patients to be attended to on a first-come, first-served basis. This is seen to be the most primitive form of appointment system, where patients are assigned a “date-only,” rather than a specific appointment slot. The authors believe that single-block systems lead to excessive waiting times for patients, while ensuring that doctors do not stay idle, and require little administrative effort.⁴
2. The “Individual-block/Fixed-interval rule” assigns each patient unique appointment times that are equally spaced throughout the clinic session. This starts with an initial block assigning a group of patients to the beginning of the session, and minimises the practitioners’ idle time i.e. should the first patient not arrive on time.⁴
3. The “Multiple-block/Fixed-interval rule” is one in which groups of patients are assigned to each appointment slot with appointment intervals kept constant.⁴
4. “Variable-block/Fixed-interval rule” permits different block sizes during the clinic session, while keeping appointment intervals the same.⁴⁸

Other approaches were to adapt the time interval between patient bookings according to different periods of the session. For example it was recommended that longer intervals be instituted between booking patients towards the end part of the session compared to the beginning part of the session.⁴⁹ The intention was to make up for time that may be lost during the earlier part of the session due to emergencies, additional time spent with patients, patients arriving late or practitioners arriving late.

A 2013 pilot intervention aimed to increase patient satisfaction by minimizing wait times using the Dartmouth Microsystem Improvement Curriculum (DMIC) framework and the Plan-Do-Study-Act (PDSA) improvement process, using a pre/post-test study design. The study supported the hypothesis that reducing waiting room wait time improves patient satisfaction, and offered a model for showing that sequential repetitive tests of change over time can lead to meaningful and sustained improvement in the delivery of care and practice performance in a variety of care settings.⁵⁰

A 2008 Australian hospital OPD study aiming to detect a cost effective system of reducing outpatient waiting times and thus improving the technical health services to patients found that cancer patients needed longer service times, which increased waiting times of the other patients waiting to be attended. They separated clinics into cancer clinics and non-cancer clinics, which was a cost effective way to reduce waiting times and improved quality of care.⁵¹

Long waiting times were found to be the prime cause of dissatisfaction amongst cancer patients in a 2012 study. The mean patient waiting time was measured at baseline and after the intervention, interviews and observations were conducted and the results were used to establish strategy to decrease patient waiting time. Interventions such as fast-tracking patients identified at check in time with potentially short service needs, incorporating information technology

applications (the Pharmacy Whiteboard) and improving lines of communication resulted in a 26.8% reduction in mean patient wait time relative to baseline.⁵²

The reasons for patients' long waiting times vary and therefore their solutions will differ. If practitioners (service providers) have long queues of patients waiting to be seen and sometimes short queues during the same day then rescheduling patient appointments can shorten patient waiting times. The authors of an article in the "Population Report" (2004) suggest that clinic staff should encourage more appointment visits or schedule appointments further apart if practitioners need to deal with walk-in patients among scheduled patients. Often check-in procedures have not been established, however it is suggested that by providing patients with numbered cards when they arrive at the facility and then calling them by number can reduce waiting time and improve patient satisfaction with healthcare services.⁵³

A 2007 quality improvement study ascertained inefficiencies in patients' visit, and made recommendations for improvement and tested effectiveness of clinic interventions. The interventions implemented included relocating the waiting area, redistributing nurse workload (relocating nurse from less busy to assist in an area with a higher workload), increasing the responsibility of the 'care assistant' and changing the flow of patients. These resulted in a 25 minutes decrease in anticoagulation clinic patient visit time and a 22 minutes decrease in chronic pain management clinic patient visit time.⁵⁴ The authors found that the ease of the intervention negated the need to hire external consultants to identify areas of inefficiency in the process of patient care, and allowed clinic staff familiar with the patient flow process to develop a sense of ownership to resolve these problems. As such, they offer a widely usable technique for improving practice.⁵⁴

A 2007 South African study that evaluated the impact of nurse triage using the Cape Triage Score (CTS) on waiting times for patients presenting at a South African public hospital Emergency Department, found that waiting times decreased in most the important areas. The use of the (CTS) reduced the total patient waiting time “from 237 min to 146 min ($p < 0.001$)”. Priority patients’ waiting time reduced “from 216 min to 38 min ($p < 0.001$)”.⁵⁵

A literature review of the impact of triage systems to improve patient flow showed that a combination of triage and initial treatment in poorly resourced settings could have a positive influence on patient flow in the clinic. This review supported conclusions from earlier studies and proposed a combination of triage and initial treatment can be used to improve triage systems and enhance patient flow in other healthcare settings.⁵⁶

A 1992 review of contraception services identified ways to shorten long waits. In this context long patient waiting times are due to patients arriving at the same time and often before the clinic session started. The proposed solution was to have the registration clerk encourage clients to come during hours when the clinic was less busy. In urban clinics, individual or small block appointments could be scheduled for clients who work or live close by. Regular clinic and staff hours would result in clients not feeling they needed to come early in order to be served.⁵⁷ The benefits of a block appointment system is also supported by a study conducted in a large South African health centre which showed a reduction in patient waiting times after implementation.⁴⁷

The review argued that late arrival of practitioners and long lunch breaks have “multiplier effect”. A 15 minute delay in starting delays later patients by more than 15 minutes. Making sure that staff members arrive 15 minutes before the time the first client is to be seen so they can be ready to start on time reduces later delays. Monitoring of lunch and coffee or tea breaks

to make sure they don't extend into clinic time is another way of reducing delays.⁵⁷ Measures to prevent situations where office or consulting room supplies run out during a clinic session and clinic staff members have to search for missing items while patients wait, are required and consulting rooms should be re-stocked at the end of each day. This avoided unnecessary increases in patient waiting time and improved efficiency.⁵⁷ In addition, improving logistics and monitoring inventory in order to avoid shortages of office supplies, medication stock-outs and patients being turned away without medication should assist in preventing long waiting times.⁵⁷ A study conducted in a South African urban health centre which focussed on measuring before and after some "inessential" processes relating to queuing was excluded or amended found that patient waiting times had reduced. This supports the idea of improving and monitoring logistics relating to queuing could potentially reduce waiting times.⁵⁸

Motivation for the study

In an article that investigated service quality in a public hospital in South Africa, found that communicating hospital processes (what to do and where to go) and the speediness of services by medical staff as critical.⁵⁹ The authors suggested that increases in financial expenditure alone will not improve healthcare systems, and as has been noted by other studies above, for radical organizational reform that facilitates "the delivery of a responsive and flexible healthcare system that is people centred with the interest of the public, patients and clients guiding the decision making at all levels".⁶⁰

This review notes the importance of waiting times in determining quality of care and patient satisfaction with services, and the importance of developing effective interventions that reduce long waiting times in primary care settings. The impact of interventions in primary care settings in South Africa have, however, not been shown. This study aims to determine the waiting times for services at primary care level for public sector services as well as evaluate the effectiveness of interventions that were proposed resulting from a 2007 waiting time study.

References

1. Maister D. The psychology of waiting lines. David Maister Professional Business Professional Life: [Online]. [Place unknown] Heath and Company, Lexington Books; 1985 [cited 2013 December 1]. Available from: <http://davidmaister.com/articles/the-psychology-of-waiting-lines/>
2. Hart M. Improving out-patient clinic waiting times: methodological and substantive issues. *International Journal for Healthcare Quality Assurance, Int J Health Care Qual Assur.* 1995; Vol 8 (6): pages 14-22.
3. Fetter RB, Thompson JD. Patients' Waiting Time and Doctors' Idle Time in the Outpatient Setting. *Health Serv Res.* 1966 Summer; 1(1):66-90
4. Cayirli T, Veral E. Outpatient Scheduling in Health Care. *Prod Oper Manag.* 2003 December;12(4): 519-549
5. Bailey NTJ. Study of Queues and Appointment Systems in Hospital Out-Patient Departments, With Special Reference to Waiting-Times *J R Stat Soc. Series B (Methodological).* 1952; 14(2): 185-99
6. Bartlett JA. Addressing the Challenges of Adherence. *J Acquir Immune Defic Syndr.* 2002 February 1; 29 Suppl 1 (2 - 10).
7. Donabedian A. Evaluating the Quality of Medical Care. *Milbank Q.* 2005 December: 83 (4): 691-729
8. Gronroos C. A Service Quality Model and its Marketing Implications. *Eur J Mark.* 1984; 18(4) : 36-44
9. Taboll S, Renzi C, Di Pietro C, Molino N, Neri P. Satisfaction with health care among dermatological inpatients. *Eur J Dermatol.* 2003 March-April: 13 (2): 177-82
10. Cleary PD, McNeil BJ. Patient Satisfaction as an Indicator of Quality Care. *Inquiry.* 1988 Spring; 25(1): 25-36
11. Wouters E, Heunis C, van Rensburg D, Meulemans. BioMedCentral. Patient satisfaction with antiretroviral services at primary health-care facilities in the Free State, South Africa – a two-year study using four waves of cross-sectional data. *BMC Health Serv Res* [Online]; 2008 October 9 [cited 2013 February 2]. Available from: <http://www.biomedcentral.com/1472-6963/8/210>.
12. Huang XM. Patient Attitude towards Waiting in an Outpatient Clinic and its Applications. *Health Serv Manage Res.* 1994 February: 7 (1): 2-8
13. Umar I, Oche MO, Umar AS. Patient waiting time in a tertiary health institution in Northern Nigeria. *J Public Health Epidemiol.* 2011 February: 3(2): 78-82
14. Anderson RT, Camacho F, Balkrishnan R. Willing to wait?: The influence of patient wait

- time on satisfaction with primary care. *Bio Med Central Health Services Research*. [Online]. 2007 [cited 2013 8 4. Available from: <http://www.biomedcentral.com/1472-6963/7/3>].
15. Hardon AP, Akurut D, Comoro C, Ekezie C, Kglatwane J, Kinsman J, et al. Hunger, waiting time and transport costs: Time to confront challenges to ART adherence in Africa. *AIDS Care*. 2007 May; 19(5): 658-65
 16. Aiken LH, Sloane DM, Bruyn L. Nurses' reports of working conditions and hospital quality of care in 12 countries in Europe. *Int J Nurs Stud*. 2013 February; 50 (2): 143-53
 17. Rafferty AM, Clarke SP, Coles J, Ball J, James P, McKeef M, et al. Outcomes of variation in hospital nurse staffing in English hospitals: Cross-sectional analysis of survey data and discharge records. *Int J Nurs Stud*. 2007 February; 44(2): 175-182
 18. Schubert M, Clarke SP, Aiken LH, De Geest S. Associations between rationing of nursing care and inpatient mortality in Swiss hospitals. *Int J Qual Health Care*. 2012 March; 24(3):230-
 19. Coetzee SK, Klopper HC, Ellis SM, Aiken LH. A tale of two systems—Nurses practice environment, well-being, perceived quality of care and patient safety in private and public hospitals in South Africa: A questionnaire survey. *Int J Nurs Stud*. 2013 February; 50 (2) 162-173.
 20. Rispe L, Moorman. *Health Legislation and Policy: Context, Process and Progress*. South African health review. 2010: p. 127 - 141.
 21. Day C, Gray A. Health and Related Indicators. *South African Health Review 2013/14* [Online]: September 2014. Available from: <http://www.health-e.org.za/wp-content/uploads/2014/10/South-African-Health-Review-2013-14.pdf>: pages 201-305.
 22. Zubane P. *Alternative service delivery models for the South African public service for the year 2020*. Masters Thesis. Cape Town: University of Stellenbosch; 2010: pages 20-23
 23. Aldana , Piechulek H, Al-Sabir A. Client satisfaction and quality of health care in rural Bangladesh. *Bull World Health Organ*. 2001; 79(6): 512-517
 24. Ben-Sira Z. The Function of the Professional's Affective Behavior in Client Satisfaction: A Revised Approach to Social Interaction Theory. *J Health Soc Behav*. 1976 March; 17(1): 3-11
 25. Mardiah FPi, Basr. The Analysis of Appointment System to Reduce Outpatient Waiting Time at Indonesia's Public Hospital. *Human Resource Management Research*. 2013; 3(1): 27-33
 26. SAPA. *KZN Patients Bemoan Long Wait for Medicine*. Independent Online South Africa (IOL). [Online]. 2009 July 14 [cited 2013 December 01]. Available from: <http://www.iol.co.za/news/south-africa/kzn-patients-bemoan-long-wait-for-medicine-1.449664#.VJ95kV4C2A>.

27. SAPA. E Cape patients wait long for medicine. Independent Online South Africa (IOL). [Online].; 2013 January 16 [cited 2013 July 02]. Available from: <http://www.iol.co.za/news/south-africa/eastern-cape/ecape-patients-wait-long-for-medicine-1.1452656#.VJ95BV4C2A>.
28. Fokazi S. Quesues, Staff Attitudes Irk Patients. Independent Online South Africa (IOL). [Online].; 2013 November 1 [cited 2013 December 03]. Available from: http://www.iol.co.za/news/south-africa/western-cape/queues-staff-attitudes-irk-patients-1.1600772#.VJ-B_F4C2A.
29. Topp SM, Chipukuma JM, Giganti M, Mwangi LK, Chiko LM, Tambatamba-Chapula B, Wamulume C et al. Strengthening Health Systems at Facility-Level: Feasibility of Integrating Antiretroviral Therapy into Primary Health Care Services in Lusaka, Zambia. PloS One. [Online]; 2010 July 13 [cited 2013 March 3]. Available from: <http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0011522>.
30. Naidoo Y. Nurse Shortage Cripples Health System. Inter Press Service. [Online].; 2008 September 23 [cited 2013 August 13]. Available from: <http://www.ipsnews.net/2008/09/south-africa-nurse-shortage-cripples-health-system/>.
31. Solidarity Research Institute. 'Report Nurse Shortage in South Africa. Nurse/Patient Ratios May', viewed 9 March 2013, from <http://www.solidarity.co.za>
32. LaGanga LR, Lawrence SR. Appointment Scheduling With Overbooking To Mitigate Productivity Loss From No-Shows. Google Scholar. [Online]. [cited 2013 11 20]. Available from: <http://tinyurl.com/p63p6w8>
33. Reagon G, Igumbor E. Strengthening Health Systems through training of Health Care Providers in the conduct of Routine Waiting Time and System Efficiency Surveys. In Series: Studies in Health Technology and Informatics. Volume 160: MEDINFO 2010 - Proceedings of the 13th World Congress on Medical Informatics; 2010; Cape Town. p. 590 – 594.
34. Vanderby SA, Babyn PS, Carter MW, Jewell SM, McKeever PD. Effect of Anesthesia and Sedation on Pediatric MR Imaging Patient Flow. Radiology. 2010 July; 256(1): 229-237
35. Heaney DJ, Howie JGR, Porter AMD. Factors influencing waiting times and consultation times in general practice. Br J Gen Pract. 1991 August; 41(349): 315-319
36. WELCH JD. Appointments Systems in Hospitals and General Practice: Appointment Systems in Hospital Outpatient Departments. Journal of the Operational Research Society, J Oper Res Soc. Sept 1964: Volume 15 (3): pages 224-232.
37. KATZ JH. Simulation of Outpatient Appointment Systems. Business Applications. 1969 Apr; 12(4).
38. Harper PR, Gamlin HM. Reduced outpatient waiting times with improved appointment scheduling: a simulation modelling approach. OR Spectrum, ORS: Vol 25 (2): pages 207-222.

39. Rising EJ, Baron R, Averill B. A Systems Analysis of a University-Health-Service Outpatient Clinic. *Oper Res.* 1973 October; 21(5):1030-1047
40. Babes M, Sarma GV. Out-Patient Queues at the Ibn-Rochd Health Centre. *J Oper Res Soc.* 1991 October; 42(10): 845-855
41. Blanco White MJ, Pike MC. Appointment Systems in Out-Patients' Clinics and the Effect of Patients' Unpunctuality. *Medical Care.* 1964 September; 2(3):133-145
42. Dexter F. Design of Appointment Systems for Preanesthesia Evaluation Clinics to Minimize Patient Waiting Times: A Review of Computer Simulation and Patient Survey Studies. *Anesth Analg.* 1999 October; 89(4): 925-931
43. Zhecheng Z, Bee Hoon H, Kiok Liang T. Estimating ICU Bed Capacity Using Discrete Event Simulation. *Int J Health Care Qual Assur.* 2012 February [cited 2013 October 8]; 25(2): 134-144
44. Jones DT. Leaning healthcare. *Journal of the Institute of Management Services.* 2006 Summer; 50(2): 16-17
45. Cuevas E, Joseph A. Improving Process Turnaround Time in an Outpatient Clinic. *Six Sigma* [Online] 2010 [cited 2013 Sept. 21] Available from: <http://www.isixsigma.com/industries/healthcare/improving-process-turnaround-time-outpatient-clinic/>.
46. Lau HS, Lau AHL. A fast procedure for computing the total system cost of an appointment schedule for medical and kindred facilities. *IIE Transactions.* 2000; 32(9):833-839
47. Mahomed H, Bachmann M. Block appointments in an overloaded South African health care centre: quantitative and qualitative evaluation. *Int J Health Care Qual Assur Inc Leadersh Health Serv.* 1998; 11 (4-5): 123-126.
48. Vanden Bosch PM, Dietz DC, Simeoni JR. Scheduling Customer Arrivals to a Stochastic Service System. *Naval Research Logistics.* 1999 July; 46 (5): 549-559
49. Ho CJ, Lau HS. Minimizing Total Cost in Scheduling Outpatient Appointments. *Manag Sci.* 1992 December; 38(12):1750-1764
50. Michael M, Schaffer SD, Egan PL, Little BB, Pritchard PS. Improving Wait Times and Patient Satisfaction in Primary Care. *J Healthc Qual.* 2013 April; 35(2):59-60
51. Yeboah EK, Thomas ME. A cost effective way of reducing outpatient clinic waiting times: How we did it. *The Internet Journal of Healthcare Administration* [Online]. 2009; 7(1) Available from <http://ispub.com/IJHCA/7/1/11900>
52. Kallen MA, Terrell JA, Lewis-Patterson P. Improving Wait Time for Chemotherapy in an Outpatient Clinic at a Comprehensive Cancer Center. *J Oncol Pract.* 2012 December ; 8(1): 1-7
53. United States Agency for International Development Maximizing Access and Quality

Initiative Information and Knowledge for Optimal Health Project. Client Flow, Population Reports series Q Maximizing Access and Quality, MAQ. Jan 1 2004: Vol 32 (1): pages 11-12.

54. Potisek NM, Malone RM, Shilliday BB, Ives TJ, Chelminski PR, DeWalt DA, et al. Use of patient flow analysis to improve patient visit efficiency by decreasing wait time in a primary care-based disease management programs for anticoagulation and chronic pain: a quality improvement study. *BMC Health Serv Res* [Online]. 2007 January 15 ; 7(8): Available from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1784086/>
55. Bruijns SR, Wallis LA, Burch VC. Effect of introduction of nurse triage on waiting times in a South African emergency department. *Emerg Med J*. 2008 July; 25(7): 395-397
56. Harding KE, Taylor NF, Leggat SG. Do triage systems in healthcare improve patient flow? A systematic review of the literature. *Aust Health Rev*. 2011 August; 35(3): 371-381
57. Management Sciences for Health. Reducing Client Waiting Time. The Family Planning Manager, *Fam Plan Mang*. Apr 1992: Vol 1 (1): pages 1-8.
58. Bachmann MO, Barron P. Why wait so long for child care? An analysis of waits, queues and work in a South African urban health centre. *Trop Doct*. January 1997; 27 (1) : 34-38
59. de Jager JW, du Plooy AT, Ayad MF. Delivering quality service to in- and out-patients in a South African public hospital. *Afr J Bus Manage*. 2010 Feb; 4(2): 133-139
60. Downey-Ennis K, Harrington D. Organizational effectiveness in Irish health care. *Managing Service Quality*. 2002; 12(5): 316-322

Article

Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa

Impact of waiting time survey

Key words: waiting, quality, service, patients, clinics

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Submitted to the East African Journal of Public Health¹

(3777 words)

DECLARATION

I, JOHANN DANIELS, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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¹ The authors' instructions for the East African Journal of Public Health are shown in Appendix 1.

Abstract

(263 words)

Objective

A waiting time survey (WTS), conducted in 2007 at 94% of clinics in Cape Town, measured length of patient waiting times (WT) for services and provided recommendations to shorten waiting times. Whether subsequent implementation of these recommendations occurred was unknown, hence a study was conducted *to* assess the impact of the previous waiting time survey recommendations on stimulating efforts to reduce waiting times and whether waiting times had reduced.

Methods

A cross-sectional analytical study design assessed the perceptions of 92% of clinic managers in Cape Town, regarding the 2007 survey, while a before and after study design assessed changes in waiting time between 2007 and 2011, using a random sample of 22 clinics.

Results

The overall median waiting time of all clinics in the sample decreased by 21 minutes in 2011 (95% CI 11.77 - 30.23), a 28% decrease from 2007. This reduction was manifest at individual clinic level as well, with 55% of clinics reducing their median waiting time by at least 15 minutes. No specific factors, including whether recommendations to reduce waiting times were implemented, were associated with decreases in waiting times. Implementation of recommendations to reduce waiting times was 2.67 times (95% CI 1.33 - 5.40) more likely amongst those who received written recommendations and 2.3 times (95% CI 1.28 - 4.19) more likely amongst managers with 5 or more years' experience.

Conclusion

The decrease in waiting times in primary care urban clinics subsequent to a waiting time survey, demonstrates the utility of waiting times surveys, although no specific factors associated with the decrease in waiting time were identified.

Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa

Submitted to the East African Journal of Public Health²

(3777 words)

Introduction

Access to health services, a key component of the primary health care (PHC) approach, is a composite concept based on three dimensions, namely: availability (or physical access), affordability (or financial access) and acceptability (or cultural access).¹ Ensuring acceptable access to quality health care services requires the measurement of the components impacting on access.¹ An important obstacle to access is long waiting times (WT), which is the time a patient waits for a service after having arrived at a clinic.² Customers who experience long waiting times often feel that they are unimportant to service providers³ and in the case of patients with an emergency, it may increase their morbidity and mortality, as their condition may deteriorate while they are waiting.⁴

Waiting time influences the level of patient satisfaction, with the length of wait being inversely related to the level of satisfaction. Waiting in long queues often leads to frustration, and can incur high opportunity costs, such as temporarily not being able to earn an income or the worsening of one's medical condition while waiting. The frustration of long waiting times is clearly described by Maister, who notes that: "Once we are being served, our transaction with the service organization may be efficient, courteous and complete: but the bitter taste of how long we wait pollutes the overall judgments we make about the quality of service".³

² The authors' instructions for the East African Journal of Public Health are shown in Appendix 1.

A patient satisfaction survey in South Africa in 2007 showed that there is general and widespread dissatisfaction with waiting times in public health clinics at all levels of care.⁵ A recent independent patient satisfaction survey conducted in the City of Cape Town showed that patient waiting time was an important factor that influenced patients' satisfaction with the services which they received.⁶

Waiting times that patients find acceptable are influenced not only by the length of time that they wait and the type of service they are accessing (e.g. preventative, curative or emergency), but also the circumstances in which they wait and the lack of communication about the estimated duration of the waiting time. The worse the circumstances they wait in and the less the communication about the expected duration of wait, the longer the wait appears, with Maister summing up this phenomenon with the truism that: "It is common experience that a two minute wait can feel like nothing at all, or can feel like 'forever'".³

The City of Cape Town Health Department (City Health) provides comprehensive primary health care services to the uninsured section of the population in the city, which encompasses 85% of the total city population of 3.5 million. Health services are provided via small to large size clinics, covering residents from informal settlements to affluent suburbs.⁷ In 2007, a waiting time survey (WTS) was conducted at 94% of clinics in Cape Town. The key output of the survey was to provide each clinic with a report that showed the median waiting time for that clinic and factors associated with long waiting times. Common factors included high workloads of staff, big batches of patients arriving at a clinic at the same time hence those in the tail end of the batch would wait for a long time and patients arriving at a clinic before the clinic is due to open would also wait long. Other less common factors were logistical problems, bottlenecks in patient flow, queuing problems and inappropriately high service times described in Table 1.⁸ Clinic staff and management received feedback on the WTS in the form of oral

presentations and individual clinic specific written reports. These individual clinic reports detailed factors associated with long waiting times and provided recommendations to reduce the waiting times.

Table 1: Factors associated with, and recommendations to reduce patient waiting times in the 2007 waiting time survey*.

| Factors associated with long waiting times* | Suggested actions to reduce waiting times due to this associated factor are:* |
|---|--|
| High workload (staff are over worked) | <ul style="list-style-type: none"> · By providing more staff · By shifting staff from clinics with a low workload. |
| Batching (patients arrive in large batches especially early in the morning) | <ul style="list-style-type: none"> · By giving appointments for quieter times and quieter days in the week · By encouraging patients to come at less busy times in the day. |
| A lack of efficiency (staff members are at the services point but are busy with something else other than attending to patients while they are waiting) | <ul style="list-style-type: none"> · Make attending to patients the number one priority · Do other activities when there are no patients waiting. |
| A mismatch (when patients are available to be attended to but staff members have not arrived at the service point yet). | <ul style="list-style-type: none"> · Encouraging patients to arrive later in the day · By staggering staff shifts · Meetings could be held at quiet times · Breaks should be taken at quiet times whenever possible. |
| A logistical problem (when staff are available to attend to patients and patients are waiting to be seen but due the lack of equipment or available rooms they are unable to attend to patients). | <ul style="list-style-type: none"> · Ensure that appropriate equipment and rooms are available. |
| Flow problems (staff are available to see patients while patients are delayed at some other service point). | <ul style="list-style-type: none"> · Reallocate staff to temporarily help at the prior service point to allow a few patients to rapidly flow through to them. |
| Queuing problems (when patients do not queue in the correct order and staff are not attending to patients in the order that they arrive at the service point - excluding fast-tracking) | <ul style="list-style-type: none"> · Provide a system for patients to queue in order · Encourage staff to ensure that patients are attended to in the order that they arrive at the service point (excluding fast-tracking). |
| High service time (inappropriately high service time). | <ul style="list-style-type: none"> · The appropriate service time should be provided. |

*Table adapted with permission from Reagon and Igumbor (2010).⁸

Although all clinic managers were encouraged to attend an oral presentation of the WT study results for their clinic and should have received a written report, this may not have occurred due to logistical and communication difficulties. The implementation of recommended actions

to reduce waiting times and the timelines for doing so were left to the discretion of individual clinic managers. Although clinic managers and staff were encouraged to reduce patients' waiting times, senior management did not expect them to prepare a formal implementation plan, and no monitoring was conducted. It is therefore unclear if all clinic managers and staff received individual clinic reports; whether they thought that the recommendations in the report to reduce waiting times based on the 2007 waiting time survey were appropriate; and, whether they implemented any actions to reduce waiting times. Disagreement with the recommendations may have resulted in them being implemented partially or not at all, and other unknown constraints may have impacted on implementation.

The aim of this study was to assess the effect of a waiting time survey on reducing subsequent waiting times in primary care clinics in Cape Town, South Africa. The objectives were to remeasure the waiting times 4 years after the first survey, assess the perceptions of clinic managers regarding the appropriateness of the 2007 recommendations to reduce waiting times and, to appraise to what extent the interventions recommended to reduce waiting times were implemented. Clinic managers' views on an acceptable level of time for patients to wait at their clinics' were also determined.

Methods

A cross-sectional analytical and a before and after study design were utilised. Through a self-administered questionnaire, the cross-sectional study assessed the perceptions of clinic managers regarding the 2007 recommendations to reduce waiting times, noted any actions they took to reduce waiting times and assessed their views on what an acceptable waiting time is for patients. The study population for this component included all clinic managers.

The before and after study measured the current (2011) waiting times of patients at the clinics on an average day in the week and assessed the effect of any interventions undertaken to reduce waiting times. It also assessed if any changes in staffing, service provision and patient attendance occurred since 2007, by comparing the relevant data collected in the 2007 and 2011 surveys.

Sampling

All clinic managers in Cape Town were included in the sample for the cross-sectional study. The before and after study stratified the clinics, based on their routinely reported monthly attendance, into small (<100 patients per day), medium (100-300 patients) and large (>300) clinics, and one of each category was randomly selected from each of the 8 sub-districts in the city. Thus 24 clinics were included in the sample from a total of 66 clinics. As was done in the 2007 survey, the 2011 survey was conducted over one working day in the week. All patients arriving at the clinic on that day were included in the sample.

Data Collection

The self-administered questionnaire for clinic managers firstly enquired about clinic manager's knowledge of suggestions and recommendations made as a result of the previous waiting time survey and whether the clinic manager considered the recommendations from the previous survey to be appropriate or not, followed by an enquiry about the extent attempts were made to implement those recommendations. Finally, managers' perceptions of a reasonable waiting time were probed.

The survey of waiting times in 2011 was done in exactly the same manner and day of the week as in 2007, allowing one to validly assess the change in waiting times. Wednesday was selected in 2007 as it is known to have an average attendance, and all services available at the clinics

are provided. As in the 2007 survey, attention was given to conducting the survey during a 5 day normal working week (no public holidays during that week), during which no special activities were taking place and during which normal staffing levels were expected.

A timesheet was used to track the movements of patients within the clinic as they progressed from one service point to another which enabled calculation of patients' waiting time.

This anonymised timesheet tracked the times that services were rendered to each patient. The start and end time of each service was recorded by the staff member who attended to the patient. The start and end time of the service rendered by the reception staff and the patient's arrival at and departure times from the clinic were recorded by a fieldworker. This enabled the calculation of the duration of service time and waiting time.

Data analysis

Univariate analysis of the clinic managers' self-administered questionnaire was conducted. Proportions and 95% confidence intervals for categorical data and medians with inter-quartile ranges for right skewed numerical data such as waiting times were calculated.

Differences between the 2007 and 2011 median waiting times for all the clinics combined and for each individual clinic with 95% confidence intervals were calculated. Individual clinic differences were classified in 2 ways. In the first classification they were stratified into two categories, namely: clinics with a decrease of 15 minutes in median WT below that of its 2007 level; or clinics with any of the 3 outcomes of unchanged median WT, increased median WT and less than 15 minute decrease in median WT. In the second classification they were again stratified into two categories, namely: those with a decrease in median WT of 25% below that of its 2007 level; or clinics with any of the 3 outcomes of unchanged median WT, increased median WT and less than 25% decrease in median WT. A difference of 15 minutes or 25% of

baseline in WT was thought to be a substantial shift in waiting times and hence was deemed as clinically significant.

Bivariate analysis was conducted by comparing various independent variables with the two outcomes of 1) 'actions to reduce waiting times were implemented at a clinic' and 2) 'waiting time decrease of either 15 minutes or 25% of previous (2007) waiting time'. Prevalence ratios and 95% confidence intervals were calculated in the bivariate analysis.

Validity

The validity of the waiting time assessment was assured through measuring and correcting actual waiting and service times. Written explanation of what was expected as well as instructions to avoid misunderstanding the questions strengthened the validity of the facility manager questionnaire. The anonymity of the questionnaire enabled the provision of honest responses.

Senior managers not included in the study completed the questionnaire and queries, suggestions and recommendations provided by them were used to clarify and improve it. A pilot study then was conducted at a clinic not included in the sample, to test and improve the quality of the questionnaire and timesheets.

Results

The response rate for the clinic manager cross-sectional study was 92% (60/65). Although in the 2011 before and after study 24 clinics had their WT measured, the findings could only be compared with 22 clinics because one of the clinics assessed in 2011 was not included in the 2007 WT study and one clinic had changed dramatically since 2007 with its staff having tripled in number.

Table 2 shows the findings of factors used to measure the clinic managers' relevant qualifications; training and management experience; their perceptions of recommendations from the 2007 WT study; interventions they planned to implement; their perceptions of factors associated with long waiting times currently operative at their clinics; and, perceptions about the length of their current waiting times.

Table 2: Clinic managers' profiles, perceptions on the 2007 WT survey, actions taken to reduce waiting times and perceptions on factors associated with long waiting times.

| Variable Description | Variable Strata | Sample Size (n) [‡] | Number and Percentage | 95% CI |
|---|---|------------------------------|-----------------------|-------------|
| Undergraduate Qualification | Had Undergraduate qualification | 60 | 56 (93.3%) | 90.1 - 96.5 |
| Postgraduate Qualification | Had Postgraduate qualification | 59 | 22 (36.7%) | 30.4 - 43.0 |
| Training in Management | Received Management Training | 60 | 46 (76.7%) | 71.2 - 82.2 |
| Training in Health Information | Received Health Information Training | 60 | 32 (53.3%) | 46.9 - 59.7 |
| Years of clinic management experience | 5 years and more | 59 | 35 (59.3%) | 52.9 - 65.7 |
| Responses by clinic managers to questions posed on various aspects of the 2007 Waiting Time survey and their consequent actions | were aware of previous WTS | 60 | 60 (100%) | 100 - 100 |
| | were involved in previous WTS | 58 | 50 (86.2%) | 81.7 - 90.7 |
| | received the previous WTS results verbally | 59 | 42 (71.2%) | 65.3 - 77.1 |
| | received written results of the previous WTS | 55 | 34 (61.8%) | 55.2 - 68.4 |
| | found the previous WTS results to be valid | 37 | 34 (91.9%) | 87.4 - 96.4 |
| | discussed the results of the previous WTS with clinic staff. | 39 | 39 (100%) | 100 - 100 |
| | discussed the suggested recommendations of the previous WTS with staff | 40 | 39 (97.5%) | 95.0 - 100 |
| | agreed with any of the suggested general recommendations | 24 | 20 (83.3%) | |
| | planned to implement any actions to reduce patient waiting time | 40 | 38 (95%) | 91.6 - 98.4 |
| | implemented any planned actions to reduce patient waiting time | 60 | 35 (58.3%) | 51.9 - 64.7 |
| | implemented actions to reduce waiting times that are still in place | 34 | 29 (85.3%) | 79.2 - 91.4 |
| | Clinic managers perceptions on the appropriateness of the specific recommendations provided in 2007 to try and minimise/remove the listed factors associated with long waiting times [*] | lack of efficiency | 53 | 47 (88.7%) |
| Mismatching | | 52 | 40 (76.9%) | 71.1 - 82.7 |
| High Workload | | 55 | 49 (89.0%) | 84.8 - 93.2 |
| Batching | | 54 | 47 (87%) | 82.4 - 91.6 |
| Patient flow problems | | 55 | 50 (90.9%) | 87.0 - 94.8 |
| Logistical problems | | 55 | 45 (81.8%) | 76.6 - 87.0 |
| Queuing problems | | 54 | 48 (88.9%) | 84.6 - 93.2 |
| High service times | | 51 | 46 (90.2%) | 86.0 - 94.4 |
| Type of interventions planned to address | Mismatching | 29 | 6 (20.7%) | 13.2 - 28.2 |
| | Batching | | 8 (27.6%) | 19.3 - 35.9 |
| | Patient flow problems | | 10 (34.5%) | 25.7 - 43.3 |
| | Queuing problems | | 5 (17.2%) | 10.2 - 24.2 |
| Clinic managers perceptions on the probable immediate factors associated with long waiting times operative at any or all City Health clinics [*] | Lack of efficiency | 53 | 18 (34.0%) | 27.5 - 40.5 |
| | Mismatch | | 6 (11.3%) | 7.0 - 15.7 |
| | High workload | | 35 (66.0%) | 59.5 - 72.5 |
| | Batching | | 18 (34.0%) | 27.5 - 40.5 |
| | Patient flow problems | | 5 (9.4%) | 5.4 - 13.4 |
| | Logistical problems | | 4 (7.5%) | 3.9 - 11.2 |
| | Queuing problems | | 2 (3.8%) | 1.2 - 6.4 |
| | High service time | | 5 (9.4%) | 5.4 - 13.4 |
| Clinic managers perceptions on the actions likely to counter long waiting times at any or all City Health clinics | Introduce an appointments system, improve queuing system and ensuring continuity | 51 | 6 (11.8%) | 7.3 - 16.3 |
| | Increase staffing capacity | | 20 (39.2%) | 32.4 - 46.0 |
| | Address inequitable workload distribution | | 10 (19.6%) | 14.0 - 25.2 |
| | Improve staff motivation, training and discipline | | 18 (35.3%) | 28.6 - 42.0 |
| | Other actions | | 8 (15.7%) | 10.6 - 20.8 |
| Clinic managers perceptions on the probable immediate factors associated with long waiting times operative at their own clinic in 2011 [§] | lack of efficiency | 29 | 5 (17.2%) | 10.2 - 24.2 |
| | Mismatching | | 1 (3.4%) | 0.0 - 6.8 |
| | High Workload | | 15 (51.7%) | 42.4 - 61.0 |
| | Batching | | 12 (41.4%) | 32.3 - 50.5 |
| | Patient flow problems | | 0 (0%) | 0.0 - 0.0 |
| | Logistical problems | | 4 (13.8%) | 7.4 - 20.2 |
| | Queuing problems | | 1 (3.4%) | 0.0 - 6.8 |
| | High service times | | 1 (3.4%) | 0.0 - 6.8 |
| Clinic managers on whether WT at their clinics are too long or not. | too long | 54 | 32 (59.3%) | 52.6 - 66.0 |

^{*} The recommendations for each of the listed factors are shown in Table 1

[‡] The n value varies for several variables since not all the respondents answered all the questions, while some variables are follow-on ones which only apply to a sub-group of respondents and even for those not all the eligible respondents answered the questions.

[§] Adds up to more than 100% as more than one answer was permissible.

Clinic profiles with regard to numbers of staff members, numbers of patients seen, the number of patients seen per staff member, *the clinic managers' perceptions of a reasonable waiting time* and the median WT for 2011 and 2007, together with differences between the 2007 and 2011 survey, are given in Table 3. Patient numbers seen at the clinics per day had increased in 2011, but so had staff numbers, resulting in only a slight decrease in patients seen per equivalent staff member per day (a decrease of 0.8 patients per staff member per day) in 2011. Within this minimally changed environment the WT decreased by a statistically significant 21 minutes in 2011, which represents a 28% decrease on the 2007 WT.

Table 3: Comparing clinics profiles between 2007 and 2011.

| Variable Description | Year | Median | Inter quartile range | Median difference (% difference) | 95% CI for Median difference |
|--|------|--------|----------------------|----------------------------------|------------------------------|
| Number of equivalent staff per clinic | 2011 | 19.0 | 10.8 - 24.6 | 2.4 (15%) | (0.47 - 4.35) |
| | 2007 | 16.6 | 9.6 - 26.0 | | |
| Number of patients attending per day per clinic | 2011 | 255 | 184 - 386 | 22.5 (10%) | (8.84 - 36.16) |
| | 2007 | 233 | 146 - 327 | | |
| Number of patients attending per day per equivalent staff member. | 2011 | 13.1 | 13 - 15 | -0.8 (-6%) | (-2.39 - 0.67) |
| | 2007 | 13.9 | 11 - 17 | | |
| Waiting Times in minutes | 2011 | 55 | 28 - 114 | -21 (-28%) | (-30.23 - -11.77) |
| | 2007 | 76 | 37 - 125 | | |
| Facility managers perceptions of an acceptable duration of WT for a visit to the clinic. | 2011 | 70 | 45 - 120 | | |

Although an overall decrease in waiting times of all clinics combined in Cape Town between 2007 and 2011 was observed, this varied between clinics with most decreasing their waiting times, some remaining unchanged and some increasing their waiting times. Fifty five percent (12/22) of clinics decreased their median waiting times by 15 minutes or more in 2011 and half (11/22) decreased their baseline 2007 waiting time by 25% or more.

Clinic managers' responses to the questionnaire were compared for two outcomes in Table 4: their implementation of recommended suggestions from the 2007 survey to decrease WTs; and

decreases in WT of 15 minutes or more and/or decreases in WT by 25% or more.. Only two factors were statistically significantly associated with implementation of interventions suggested from the baseline survey: receipt of written reports of the previous survey (PR=2.67; 95% CI: 1.33-5.40) and managers with more than five years management experience (PR=2.3; 95% CI: 1.28-4.19). No specific factor was associated with a decrease in WT.

Table 4: Association between clinic managers' responses to the 2007 WTS and implementation of recommended suggestions and reduction in waiting times between 2007 and 2011.

| Variable Description | Variable Category | Clinic managers who implemented any planned actions to reduce WT | | | | 2011 Median WT decrease by 15 min and more OR by 25% or more of 2007 median WT | | | |
|--|-------------------|--|----|------------------|--------------|--|----|------------------|-------------|
| | | Yes | No | Prevalence Ratio | 95% CI | Yes | No | Prevalence Ratio | 95% CI |
| Clinic managers who were involved in previous WTS | Yes | 29 | 21 | 1.16 | 0.56 - 2.41 | 7 | 8 | 0.7 | 0.27 - 1.83 |
| | No | 4 | 4 | | | 2 | 1 | | |
| Clinic managers who received the previous WTS results verbally | Yes | 28 | 14 | 1.88 | 0.96 - 3.72 | 6 | 6 | 1 | 0.37 - 2.66 |
| | No | 6 | 11 | | | 3 | 3 | | |
| Clinic managers who received written results of the previous WTS | Yes | 26 | 8 | 2.67* | 1.33 - 5.40 | 4 | 5 | 0.5 | 0.24 - 1.30 |
| | No | 6 | 15 | | | 4 | 1 | | |
| Clinic managers who found the previous WTS results to be valid | Yes | 26 | 8 | 1.14 | 0.50 - 2.60 | 6 | 5 | | |
| | No | 2 | 1 | | | 0 | 0 | | |
| Clinic managers who discussed the suggested recommendations of the previous WTS with staff | Yes | 14 | 2 | | | 5 | 3 | | |
| | No | 0 | 1 | | | 0 | 0 | | |
| Clinic managers who agreed with any of the suggested general recommendation | Yes | 18 | 2 | 2.7 | 0.54 - 13.46 | 4 | 1 | 0.8 | 0.51 - 1.24 |
| | No | 1 | 2 | | | 1 | 0 | | |
| Clinic managers who planned to implement any actions to reduce patient waiting time | Yes | 27 | 4 | | | 5 | 5 | 1 | |
| | No | 0 | 0 | | | 5 | 5 | | |
| Clinic managers who have 5 years and more Clinic management experience | Yes | 27 | 8 | 2.3* | 1.28 - 4.19 | 5 | 3 | 1.4 | 0.57 - 3.50 |
| | No | 8 | 16 | | | 4 | 5 | | |
| Clinic managers who implemented any planned actions to reduce WT | | | | | | 5 | 3 | 1 | 0.40 - 2.53 |
| | | | | | | 4 | 5 | | |
| Clinic implemented actions to reduce WT are still in place | | | | | | 5 | 3 | 1 | 0.20 - 5.00 |
| | | | | | | 4 | 5 | | |
| Clinic managers who thought WT at the clinic was too long | Yes | 17 | 15 | 0.73 | 0.48 - 1.10 | 5 | 4 | 1.1 | 0.41 - 2.99 |
| | No | 16 | 6 | | | 3 | 3 | | |

* Indicates a statistically significant association with the 95% CI not crossing the unitary value.

Discussion

It was gratifying that the overall waiting times for the sample of clinics in Cape Town had decreased by 21 minutes between 2007 and 2011, a 28% reduction on the 2007 waiting times. Given that similar conditions pertained in 2007 and 2011, this was a real reduction, rather than just an artefact of changed staffing and attendance circumstances at clinics. Waiting times had similarly reduced at most (55%) individual clinics by at least 15 minutes. The results are remarkable as there was doubt that any actions to reduce WT had been implemented. This degree of improvement bodes well, as despite interventions not addressing all the major causes of long waiting times, significant decreases in WT were found. Although clinic managers may not have implemented all the relevant interventions, the few interventions they did implement were effective in more than half the clinics. Published literature demonstrates that implementation of interventions, such as encouraging some patients (for example those attending for immunisation services) to make and attend clinics via appointments can have a snowball effect on the reduction of waiting times of the rest of the patients.^{9,10} Implementation of additional focused proven interventions, such as appointment systems, may therefore decrease WTs further.⁹

However, implementation of further interventions to reduce waiting times may not be realised as current overall median waiting times (55 minutes) are lower than that which the managers feel are acceptable (70 minutes). They may believe they have “done enough” and that further actions to reduce WT is not a priority. Alternatively responses to questions regarding acceptable waiting times may have been artificially inflated, as managers believed actual waiting times were longer than were found. Although some low waiting times may be due to the Hawthorne effect with staff improving their efficiency and, in turn patient waiting time being reduced on the day of the survey, due to the fact that they were being monitored,² this

would have been the case for both surveys. Consequently it does not explain the decrease in waiting times between 2007 and 2011, making it more likely that these are real decreases.

The results show that clinics which implemented actions to reduce waiting times were not more likely to decrease median waiting times, than those clinics who reported that they had not implemented any actions to reduce waiting times. It is unclear why some clinics who reported no actions to reduce waiting times, had reduced median waiting times. This may be due to misclassification as interventions could have been implemented but not reported. Additionally staff may have become more aware of long waits patients' experience and the culture of the organisation may have changed to become more patient centred. This changed milieu may have promoted a decrease in waiting times. Alternatively it might be that although the clinic had not formally instituted any actions, some staff members may have on their own initiative effected changes at their service points, which resulted in a reduction in waiting times. This result of *any* intervention implemented having no effect on waiting times is also likely to be due to the coarse metric measured and future studies should measure *specific* interventions and how they were implemented, rather than simply measuring the implementation of *any* intervention. Most managers (86%) had been involved in the 2007 WTS in some way. All were aware of the waiting time survey and most had received either written (62%) or verbal (71%) reports on the survey. This indicates that clinic managers certainly received advice on how to implement relevant actions to reduce waiting times. Since 40% of them did not implement any actions to reduce waiting times, this may suggest that some managers may find that implementing the relevant actions and monitoring them, is a difficult task to initiate and sustain. This was reported in the literature, where a US Michigan waiting time improvement project concluded that implementing actions to reduce WT requires motivated staff and the co-operation of most (clinical and non-clinical) staff members, which may be a difficult environment to create in a healthcare setting.¹¹ Clinic managers who did not implement actions

to reduce waiting times may require more than just knowledge and experience, and additional self-motivation, staff motivation and leadership skills are probably required to implement and monitor such changes.

Although clinic managers agreed that the findings of the 2007 survey were valid and recommendations were appropriate, these may be the consequence of them having no baseline to compare the 2007 WT results with. Additionally they may lack the research skills required for assessing the veracity of the researchers' conclusions and recommendations. Almost two thirds of the managers had planned to and did take action to reduce waiting times. This confirms they found the recommendations appropriate. This implies that even though they were not given instruction, managers do act on relevant information available to them to improve health service provision. This finding was echoed in a 1992 Zimbabwean study that described the use of a simple client flow analysis to assess patient waiting times by clinic managers and staff, and how this information was then used by clinic staff to reduce patient waiting times.¹² Similarly another study described how staff in a clinic in Senegal in 1999 and staff in a district hospital in Malawi in 1996 acted on relevant information to reduce waiting times.¹³ From a senior management perspective such initiative is encouraging and is an opportunity to assist clinic managers. The establishment of a discussion platform aimed at developing comprehensive easy-to-use strategies with minimal impact on routine staff tasks that are proven to reduce waiting times, may serve to disseminate evidence-based good practice.

Two factors were associated with implementing actions to reduce WT. They are – 'clinic managers who received a written report' and those who had '5 or more years of experience as a clinic manager'. Knowledge of the presence of long waits at clinics and causes of these long waits are probably a necessary spur to action, and in some cases this was sufficient to result in actions to reduce WT. These factors do not fully explain the implementation of initiatives, and

may suggest that some additional motivators are required to both initiate and sustain action to reduce WT. Conducting a WTS on an ad-hoc basis may not be enough of an incentive for staff to sustain interventions to reduce WT. Fortunately the South African ‘national core standards’ (NCS), which have been recently implemented, requires clinic staff to conduct a WTS regularly.¹⁴ The current WTS, or some simpler variant of it such as measuring the total time spent by patients at a clinic (obtained by measuring only the arrival time and departure times of patients), as a proxy for waiting times, if routinely regularly repeated, may encourage staff to sustain interventions in order to achieve ongoing reductions in waiting times.

The fact that the response rate for the clinic manager cross-sectional study was 92% (60/65) and only 22 of the 24 clinics was be compared in the 2011 before and after study could be viewed as limitations of the study.

Conclusion

This study demonstrates that waiting times at primary care services in the public sector can be reduced and points to the value of measuring waiting times as a service quality improvement strategy. This waiting time survey conducted in Cape Town in 2011 demonstrated a reduction of 21 minutes (a 28% reduction) in waiting time from 2007 in clinics overall, although the specific factors contributing to the decrease in waiting time were not elucidated. Most (55%) individual clinics reduced their waiting times by 15 minutes or more in 2011 compared to 2007. The WT strategy had credibility amongst managers who believed the 2007 findings were valid, the recommendations to reduce WT were appropriate, and most managers took and sustained action to reduce waiting times. Management experience and the written communication with managers were the only factors found to be associated with reported actions to reduce WT. Despite the decreases in waiting times between 2011 and 2007 there is, however, pessimism about further decreases in waiting times, as the current median waiting

times at clinics are now already lower than that deemed to be acceptable by the clinic managers.

Recommendations

It is beneficial to provide timeous reports of waiting times surveys that highlight the recommendations that address the commonest causes of long waiting times, to individual facility managers.

Rapid assessments, such as measuring the total time spent by patients at a clinic (a proxy for waiting times obtained by measuring only the arrival time and departure times of patients), could be regularly conducted to monitor waiting times. Repeat detailed waiting time surveys could then be conducted in clinics that show static or increasing waiting times.

Further research to assess the effect of specific actions taken to reduce waiting times may elucidate the measures that have most impact on waiting times in busy public primary care service settings.

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References

1. McIntyre D, Goudge J, Harris B, Nxumalo N, Nkosi M. Prerequisites for National Health Insurance in South Africa: Results of a national household survey. *South African Medical Journal*, S Afr Med J. Oct 2009; 99 (10) 725-29
2. Hart M, Improving out-patient clinic waiting times: methodological and substantive issues. *International Journal for Healthcare Quality Assurance, Int J Health Care Qual Assur.* 1995: Vol 8 (6): pages 14-22
3. Maister D. The psychology of waiting lines. David Maister Professional Business Professional Life. [Online]. 1985 [cited 2013 12 1.] Available from: <http://davidmaister.com/articles/the-psychology-of-waiting-lines/>.
4. Naidoo Y. Nurse Shortage Cripples Health System. Inter Press Service [Internet]. Sept 23 2008. Available at <http://www.ipsnews.net/2008/09/south-africa-nurse-shortage-cripples-health-system/>
5. Anderson RT, Camacho F, Balkrishnan R. Development of a series of patient information leaflets for constipation using a range of cognitive interview techniques: LIFELAX. Bio Med Central Health Services Research, BMC Health Serv Res. [Online]. 2007 Jan [cited 2013 Aug. 4] Available from <http://www.biomedcentral.com/1472-6963/7/3>.
6. City of Cape Town, Strategic Development Information and GIS Department, Community Satisfaction Survey, Project Robben. Feb. 2011 [Internet] Available at <https://www.capetown.gov.za/en/Documents/Robben%20CSS%20Residents%202010-11%20Mayco.pdf>: page10.
7. Day C, Gray A, Health and Related Indicators. *South African Health Review 2013/14* [Internet] : Sept. 2014. Available from <http://www.health-e.org.za/wp-content/uploads/2014/10/South-African-Health-Review-2013-14.pdf>: pages 201-305.
8. ReagonG, Igumbor E. Strengthening Health Systems through training of Health Care Providers in the conduct of Routine Waiting Time and System Efficiency Surveys. In Series: Studies in Health Technology and Informatics | Volume 160: MEDINFO 2010 - Proceedings of the 13th World Congress on Medical Informatics; 2010; Cape Town. p. 590 – 594.
9. Welch JD, Appointments Systems in Hospitals and General Practice: Appointment Systems in Hospital Outpatient Departments. *Journal of the Operational Research Society, J Oper Res Soc.* Sept 1964: Volume 15 (3): pages 224-232.
10. Harper PR, Gamlin HM. Reduced outpatient waiting times with improved appointment scheduling: a simulation modelling approach. *OR Spectrum, ORS:* Vol 25 (2): pages 207-222.
11. Cuevas E, Joseph A. Improving Process Turnaround Time in an Outpatient Clinic. Six Sigma [Online] 2010 [cited 2013 Sept. 21] Available from <http://www.isixsigma.com/industries/healthcare/improving-process-turnaround-time-outpatient-clinic/>
12. Management Sciences for Health. Reducing Client Waiting Time. *The Family Planning Manager, Fam Plan Mang.* Apr 1992 : Vol 1 (1) pages: 1-8.
13. United States Agency for International Development Maximizing Access and Quality Initiative Information and Knowledge for Optimal Health Project. Client Flow, Population Reports series Q Maximizing Access and Quality, MAQ. Jan 1 2004: Vol 32 (1): pages 11-12.

14. The Republic of South Africa, National Core Standards for Health Establishments in South Africa [Internet] Department of Health, Tshwane: 2011. Available at <http://www.sarrahsouthafrica.org/LinkClick.aspx?fileticket=YnbSHfR8S6Q=>: pages 8-15.

Appendices

Appendix 1: East African Journal of Public Health Instructions to authors



East African Journal of Public Health
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Instructions for Authors

Aims, scope and policy: *The East African Journal of Public Health* is a multi-disciplinary journal publishing scientific research work from a wide range of public health related disciplines including community medicine, epidemiology, biostatistics, behavioural sciences, health promotion, environmental health, nutrition, communicable and non-communicable diseases. The journal also engages in, and responds to, current scientific and policy debates, including methodological issues in public health research. The journal aims at both to focus and reflect on current public health concerns as well as contribute to the setting of research agenda in public health research.

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Sections of the manuscript

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Methods: This should include the design of the study, the setting, the type of participants or materials involved, sample size (where appropriate), instrument(s) used (e.g. questionnaire), a clear description of all interventions and comparisons (where appropriate), ethical issues, and the type of statistical analysis done including software used. The methods should be described in sufficient detail to allow the reader to judge their accuracy, reproducibility, and reliability.

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- ii. STROBE for reports from observational studies in epidemiology (<http://www.strobe-statement.org>)
- iii. TREND for reports of non-randomized evaluations of intervention (<http://www.trend-statement.org/asp/trend.asp>)
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Acknowledgements: Please acknowledge any person who contributed towards the study by making substantial contributions to conception, design, acquisition of data, or analysis and interpretation of data, or who was involved in drafting the manuscript or revising it critically for important intellectual content, but does not meet the criteria for authorship. Please acknowledge also any person who contributed materials essential for the study. Authors should obtain permission to acknowledge from all those mentioned in the acknowledgement. Please list the sources of funding for the project in the acknowledgements section.

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2. Mwenge CB, Karanga JL, Motto SF, et al. Antifungal treatment failure rates in AIDS patients. *East Afr J Epidemiol* 2005;Suppl 3:32-35.

In press articles

3. Maharage BL, Karanga JL, Kitokke PS. Nutritional assessment among underfive children. *East Afr J Nutr*, in press.

Published abstract

4. Kikko JB, Mchele JL, Jinno SF, et al. Adolescent health in rural communities (abstract). *Afr J Adolesc* 2003;73:335.

Articles within conference proceedings.

5. Chungwa BN, Mtama JL, Motto SF. Cassava poisoning in semi-arid rural areas. In: *Proceedings of the 3rd National Conference on Nutrition in Tanzania:27-30 June 2003*; Arusha. Edited by Fissi GB. Dar es Salaam: Kolosso Press; 2003:332-335.

Book chapter, or article within a book

6. Korosho TK. Vitamin A deficiency in poor communities. In: Plumber JG, Kulola MB, eds. *Nutrition and Health in Africa*. 2nd Edition. Dar es Salaam: Kitoke Press; 1997:54-69.

PhD thesis

7. Asali JB. Epidemiology of filariasis in Malagwa. PhD thesis. Muhimbili University; 2004.

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Appendix 2: List of Acronyms and Abbreviations

| | |
|-----|----------------------|
| CI | Confidence Interval |
| IQR | Inter Quartile Range |
| PHC | Primary Health care |
| WT | Waiting Time |
| WTS | Waiting Time Survey |

Appendix 3: Clinic manager questionnaire

| CLINIC MANAGER QUESTIONNAIRE | | | |
|------------------------------|--|---|--|
| CLINIC NAME: | | | |
| SECTION A | | | |
| 1 | How long have you been working for the City of Cape Town - City Health? | No. of years | |
| 2 | How long have you been managing facilities? | No. of years | |
| 3 | How long have you been managing this facility? | No. of years | |
| 4 | Do you have an undergraduate qualification? | If yes, specify | No |
| 5 | Do you have a post graduate qualification? | If yes, specify | No |
| 6 | Have you had any management training? | If yes, specify | No |
| 7 | Have you had any health information systems training? | If yes, specify | No |
| 8 | Are you aware of a waiting time survey (WTS) having been conducted in the City Health clinics? | Yes | No |
| 9 | Were you involved in the WTS in any way? | Yes | No |
| | At the facility you are currently located at | | |
| | At any other facility | | |
| 10 | Were the results of the waiting time survey (WTS) conducted in 2007 presented (verbally) to you? | Yes | No |
| | At the facility you are currently located at | | |
| | At any other facility | | |
| 11 | Did you receive a written report of the results of the 2007 WTS? | Yes | No |
| | At the facility you are currently located at | | |
| | At any other facility | | |
| 12 | Did you think the results were valid? | If yes, why do you think they were valid? | If no, why do you think they were not valid? |
| | At the facility you are currently located at | | |
| | | | |
| | At any other facility | | |
| 13 | Did you discuss the results with the clinic staff? | Yes | No |
| | At the facility you are currently located at | | |
| | At any other facility | | |
| 14 | Did you discuss the suggested recommendations with the clinic staff? | Yes | No |
| | At the facility you are currently located at | | |
| | At any other facility | | |
| 15 | Did you agree with any of the suggested general recommendations? | If yes, which general recommendation? | |
| | At the facility you are currently located at | | No |
| | | | |
| | At any other facility | | |
| 16 | Did you disagree with any of the suggested general recommendations? | If yes, which general recommendation? | |
| | At the facility you are currently located at | | No |
| | | | |
| | At any other facility | | |
| 17 | Did you plan to implement any actions to reduce waiting times? | If yes, which action/s did you plan to implement? | If no, what prevented you from planning to reduce waiting times? |
| | At the facility you are currently | | |

| | | | | |
|-----------|--|---|----------------------|---|
| | located at | | | |
| | At any other facility | | | |
| 18 | Did you implement any of the planned actions (if yes, to 17)? | If yes, which action/s did you implement? | | If no, what prevented you from implementing the planned action? |
| | At the facility you are currently located at | | | |
| | At any other facility | | | |
| 19 | Are the implementations still in place (if yes, to 18)? | If all | If some, which ones? | If none, explain? |
| | At the facility you are currently located at | | | |
| | At any other facility | | | |
| 20 | What do you think causes long waiting times at clinics in City of Cape Town - City Health | | | |
| 21 | How do you think those causes can be countered to reduce waiting times? | | | |
| 22 | Independent of the results and recommendations of the 2007 WTS did you implement any actions to reduce waiting times? | If yes, what actions? | | No |
| | At the facility you are currently located at | | | |
| | At any other facility | | | |

| SECTION B | | | | |
|---|---|--|-------------|---------------------------|
| During the 2007 WT survey the following causes of long waiting times were uncovered. Do you think that the general recommendations provided to try and minimise/remove the effect of these causes: (a) are appropriate in general and /or (b) are appropriate for your current clinic? | | | | |
| | Reasons for long waiting times | Suggested actions to reduce waiting times due to this cause are: | | |
| A | High workload (staff are over worked) | <ul style="list-style-type: none"> By providing more staff By shifting staff from facilities with a low workload. | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |
| B | Batching (patients arrive in large batches especially early in the morning) | <ul style="list-style-type: none"> By giving appointments for quieter times and quieter days in the week By encouraging patients to come at less busy times in the day. | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |
| C | A lack of efficiency (staff members are at the services point but are busy with something else other than attending to patients while they are waiting) | <ul style="list-style-type: none"> Make attending to patients the number one priority Do other activities when there are no patients waiting. | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |
| D | A mismatch (when patients are available to be attended to but staff members have not arrived at the service point yet). | <ul style="list-style-type: none"> Encouraging patients to arrive later in the day By staggering staff shifts Meetings could be held at quiet times Breaks should be taken at quiet times whenever possible. | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |
| E | A logistical problem (when staff are available to attend to patients and patients are waiting to be seen but due the lack of equipment or available rooms they are unable to attend to patients). | <ul style="list-style-type: none"> Ensure that appropriate equipment and rooms are available. | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |
| F | Flow problems (staff are available to see patients while patients are delayed at some other service point). | <ul style="list-style-type: none"> Reallocate staff to temporarily help at the prior service point to allow a few patients to rapidly flow through to them. | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |
| G | Queuing problems (when patients do not queue in the correct order and staff are not attending to patients in the order that they arrive at the service point - excluding fast-tracking) | <ul style="list-style-type: none"> Provide a system for patients to queue in order Encourage staff to ensure that patients are attended to in the order that they arrive at the service point (excluding fast-tracking). | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |

| | | | | |
|----------|--|--|-------------|---------------------------|
| H | High service time (inappropriately high service time). | The appropriate service time should be provided. | Agree (Yes) | If Disagree (No), specify |
| | | | | |
| | | | | |
| | | | | |

SECTION C

| | | | |
|----------|--|---|---|
| 1 | How long do you think the average waiting time at this facility is? | No. of minutes | |
| 2 | Do you think that the average waiting times at this facility is too long? | If yes, why do you think the average waiting time are too long? | If no, why do you think the average waiting time is not too long? |
| | | | |
| | | | |
| | | | |

Appendix 4: Timesheet

Patients

| Waiting and Service Time Survey | | | | | | | | |
|---------------------------------|------------|---------|----------|--|--|---------|--|--|
| Facility name: | | | Date: | | | Number: | | |
| Arrival Time | | | | | | | | |
| Service Section | Staff Code | Time In | Time Out | | | | | |
| Reception | | | | | | | | |
| TB DOTS | | | | | | | | |
| Triage | | | | | | | | |
| Oral Rehydration Room | | | | | | | | |
| Consulting Room PN | | | | | | | | |
| HIV Pre-Counselling | | | | | | | | |
| HIV-Post Counselling | | | | | | | | |
| Sexual Reproduction Room | | | | | | | | |
| Dietician | | | | | | | | |
| Consulting Room Doctor | | | | | | | | |
| Family Planning | | | | | | | | |
| Pharmacy | | | | | | | | |
| ARV Preparation Room | | | | | | | | |
| Emergency | | | | | | | | |
| Other Services 1 | | | | | | | | |
| Other Services 2 | | | | | | | | |
| Departure Time | | | | | | | | |
| Comments: | | | | | | | | |

Appendix 5: Consent form for clinic managers

Assessment of whether routinely conducting waiting time surveys result in reduction of waiting times if they were high to begin with.

Consent Form for Participants

- I am an employee at the City of Cape Town (City Health) and I am doing a study understand the (successful or unsuccessful) attempts made to implement the recommendations made to reduce waiting times (based on the 2007 waiting time survey results).
- The purpose of the study is to find out whether routinely conducting waiting time surveys result in reduction of waiting times if they were high to begin with.
- I would like to invite you to participate in the study and complete the questionnaire attached. The questionnaire asks for some information about yourself and your involvement in the implement the recommendations made to reduce waiting times.
- You do not have to answer any questions that make you uncomfortable and can also withdraw from the study at any time without any consequences.
- You should not feel compelled to participate and your decision to participate will, in no manner, affect employment at the City of Cape Town (City Health).
- However, I would like to encourage you to consider participating as the study may benefit the quality of health care provided in the facilities. If you do agree to participate, please be as truthful as possible when answering the questions.

CONSENT

- I hereby give my consent to participate in this study.
- I understand I am taking part freely without being coerced into doing so.
- I am aware that my answers and opinions will remain confidential.
- I understand that I can withdraw from the study at any time without any consequences.
- By completing this questionnaire I confirm that I am willing to participate in this study.

.....
Signature of participant

Date:

If there are any questions arising from your participation you may contact me :

Johann Daniels, email : johann.daniels@capetown.gov.za or : 021-400-2981

Appendix 6: Consent form for patients

WAITING TIME SURVEY

Dear Patient

We are conducting a survey to assess how long patients wait at City of Cape Town clinics. We request your assistance on the understanding that the objective of this exercise is to improve services for you the patient. If you are willing to participate, then we will ask you a few questions and then ask you to hold on to a form while you are in the clinic. We will not ask you for your name or for any personal information. Whenever you are attended to by a member of staff, hand in the form to them and they will record the time of service on it and then return it to you. Once you have finished for the day, please return the form to us as you leave the clinic. If you do not wish to participate that is fine and it will not affect the services which you receive here at this clinic. Also if you wish to withdraw from this survey at any point, then you are free to do so without having to explain to us your decision to withdraw. We thank you for your assistance.

Could you please verbally confirm whether you are willing to participate in this survey, or not.

UKUBALWA KWEXESHA LOKULINDA

Sigulana esithandekayo

Siqhuba ubalo-xesha ukuze sijonge ukuba izigulana zilinda ixesha elingakanani kwiikliniki zeSixeko seNtsona Koloni. Sicela intsebenziswano kuba injongo yolubalo-xesha kukuphucula impatheko yakho njengesigulana. Ukuba uyavuma sizacucela ukukubuzisa imibuzo embalwana nje, size sikunike iphetshana okwangoku usekwikliniki yethu. Asizukubuzisa igama lakho okanye iinkcukacha zobuqu. Naninina uncedwa ngomnye wabasebenzi basekliniki, nceda ubanike eli phetshana, bazakubhala ixesha ofike ngalo baze balibuyisele kuwe. Xa sele ugqibe yonke into ubuzokuyenza ekliniki nceda ulibuyisele kuthi eli phetshana ngaphambi kokuba ugoduke. Ukuba awunamdla ukuthabatha inkxaxheba kolubalo-xesha akukho ngxaki, loo nto ayizukuyichaphazela indlela ozakuphatheka ngayo kulekliniki. Kwangaxeshanye ukuba uthe sele ulithathile iphetshana kuthi wagqiba ukuba ungabisaqhubeka nolubalo-xesha, wamkelekile ukuba uyeke yaye akuyomfuneko ukuba usixelele isizathu. Siyayibulela inkxaso yakho. Nceda usixelele ukuba ukulungele okanye awukulungelanga ukuthabatha inkxaxheba kolubalo-xesha.

WAGTYD OPNAME

Geagte Pasiënt

Ons is besig met 'n opname om te bepaal hoe lank pasiënte wag op die Stad Kaapstad klinieke. Ons vra u hulp met die verstandhouding dat die doel van hierdie oefening is om dienste te verbeter vir jou die pasiënt. As jy bereid is om deel te neem, dan sal ons jou 'n paar vrae en dan vra om op te hou om 'n vorm terwyl jy in die kliniek. Ons sal jou nie vra vir jou naam of enige persoonlike inligting. Wanneer jy bygewoon om deur 'n lid van die personeel, hand in die vorm aan hulle, en hulle sal die tyd van die diens op dit te teken en dan stuur dit terug na jou. Sodra jy klaar vir die dag, asseblief die vorm om ons as jy die kliniek verlaat. As jy nie wil deelneem is dit goed en dit sal geen invloed op die dienste wat jy hier ontvang op hierdie kliniek. Ook as jy wil om te onttrek van hierdie opname by enige punt, dan is jy vry om dit te doen sonder om te verduidelik aan ons jou besluit om te onttrek. Ons bedank u vir u hulp.

Kan jy asseblief mondelings bevestig of jy bereid is om deel te neem in hierdie opname, of nie.

Appendix 7: Ethics approval



UNIVERSITY OF CAPE TOWN

Faculty of Health Sciences
Human Research Ethics Committee
Room E52-24 Groote Schuur Hospital Old Main Building
Observatory 7925
Telephone [021] 406 6626 • Facsimile [021] 406 6411
e-mail: shuretta.thomas@uct.ac.za

09 March 2011

HREC REF: 123/2011

Mr J Daniels
c/o Dr V Zweigenthal
Public Health & Family Medicine

Dear Mr Daniels

PROJECT TITLE: ASSESSING THE IMPACT OF A WAITING TIME SURVEY ON REDUCING WAITING TIMES IN PRIMARY CARE CLINICS IN CAPE TOWN, SOUTH AFRICA.

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee for review.

It is a pleasure to inform you that the Ethics Committee has **formally approved** the above-mentioned study.

Approval is granted for one year till the 15 March 2012.

Please submit an annual progress report (FHS016) if the research continues beyond the expiry date. Please submit a brief summary of findings if you complete the study within the approval period so that we can close our file.

Please include the contact details for the Faculty of Health Sciences Research Ethics Committee if participants should have any concerns about their Rights & Welfare in the study.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please quote the HREC REF in all your correspondence.

S Thomas

Yours sincerely



PROFESSOR M BLOCKMAN

CHAIRPERSON, FHS HUMAN ETHICS

Federal Wide Assurance Number: FWA00001637.

Institutional Review Board (IRB) number: IRB00001938

PP

This serves to confirm that the University of Cape Town Research Ethics Committee complies to the Ethics Standards for Clinical Research with a new drug in patients, based on the Medical Research Council (MRC-SA), Food and Drug Administration (FDA-USA), International Convention on Harmonisation Good Clinical Practice (ICH GCP) and Declaration of Helsinki guidelines.

The Research Ethics Committee granting this approval is in compliance with the ICH Harmonised Tripartite Guidelines E6: Note for Guidance on Good Clinical Practice (CPMP/ICH/135/95) and FDA Code Federal Regulation Part 50, 56 and 312.

S Thomas



University of Cape Town


Faculty of Health Sciences

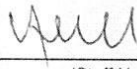
Form D1: Approval of Study Proposal (incorporating Supervisor Approval)

SUBMISSION OF STUDY PROPOSAL FOR A MASTER'S OR DOCTORAL DEGREE *AFTER ETHICAL APPROVAL*

PLEASE NOTE: This form must not be sent to Ethics

I would like to submit the attached proposal and supporting documentation for consideration by the Dissertations Committee (after Ethics approval).

Signature (Candidate):  Date 23/1/2015

| | | | | | | | |
|--|---|---------------|--------|---|---|---|--|
| SURNAME OF CANDIDATE | Daniels | FIRST NAMES | Johann | | | | |
| STUDENT NUMBER | DNLJOH009 | PEOPLESOFT ID | | | | | |
| EMAIL ADDRESS | johann.daniels@capetown.gov.za | | | | | | |
| QUALIFICATIONS | Dip. in Acupuncture | | | | | | |
| TITLE OF PROPOSED PROJECT (Proposal attached) | Assessing the impact of a waiting time survey on reducing waiting times in primary care clinics in Cape Town, South Africa | | | | | | |
| DEPARTMENT | School of Public Health and Family Medicine | | | | | | |
| DEGREE NAME (e.g MSc (MED) IN HUMAN GENETICS) | Master of Public Health | DEGREE CODE | | | | | |
| | | M | M | 0 | 1 | 2 | |
| PROPOSAL APPROVED BY (Delete any one if not applicable) Human Ethics Committee, ERC No: Animal Ethics Committee, ERC No: | Please provide signature of Dept. Research Chair | | | | | | |
| | If ethics approval not required please comment: | | | | | | |
| FINAL SUBMISSION OF STUDY PROPOSAL APPROVED BY SUPERVISOR | Supervisor Name: <u>V. ZWEIFENTHAL</u> Signature:  | | | | | | |
| NAME(S) OF CO-SUPERVISOR(S) | 1. <u>Dr G Reagan</u> | (Staff No: | |) | | | |
| | 2. | (Staff No: | |) | | | |
| | 3. | (Staff No: | |) | | | |
| FINAL SUBMISSION APPROVED BY HEAD OF DIVISION/OR DEPARTMENT | Name of Head of Division: Signature | | | | | | |

Please Note: Together with this form you must submit:

- A copy of the Ethics approval letter (if relevant)
- A copy of the Study Proposal

For office use:

| | | |
|------------------------------|-------|---------------|
| Received by: | Name: | Date: |
| Captured on PSoft / Database | Name: | Date: |
| Entered in DC | Name: | DC no: PG-Med |
| | | Date: |